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BRISTOL: 8, Upper Berkeley Place, Clifton Bristol 21930

Annually £5 by post Single copies, Two shillings.

Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Editor: B. W. C. Cooke, Assoc. Inst. T.

Vol. 109]

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Railway Service to the Travelling Public

THE fallacy of comparing the cost of long-distance railway and motorcoach travel without taking into account the real factors is pointed out by Sir Reginald Wilson, a Member of the British Transport Commission, in a letter to *The Manchester Guardian*. That journal had prophesied, in an editorial article on the financial situation of the railways, long journeys by motorcoach within a year or two, over the new trunk roads, at high average speeds and "at a fraction of the cost of railway travel." Sir Reginald Wilson points out that in terms of seat-miles of service offered, the railway carriage seat-mile will cost less than the seat-mile in a coach. The reason why railway fares are higher than coach fares is the higher cost incurred by the railways in providing frequent services of trains with enough rolling stock to cater as far as possible for peak traffics, and for

fluctuations in the number of passengers travelling at all periods. The capital cost of providing rolling stock for peak-hour suburban traffic is very high; much of this stock is unemployed or under-employed for a large part of the day. The motorcoach operator, on the other hand, can restrict his services to what he can expect to be booked up, and can achieve maximum user of his vehicles. The existence of the low road fare is explained by the restrictive working of the licensing system, which enables the road operator to run, free from competition, coaches comfortably full all the year. British Railways are acting in accordance with a long tradition of public service and are fulfilling a moral obligation by providing a high proportion of passengers with the means of travelling when and where they please and in reasonable comfort, without having to book in advance. The difference between rail and motorcoach fares, which is often lessened by cheap travel facilities provided by the railways, is not a high price to pay for the ability to answer the needs of countless individuals and of surges of traffic whose free movement is essential in a highly-developed community. The community, including many who travel on important business, relies on the railways to transport it at short notice. This reliance is justified by the provision by British Railways of train services unequalled in any other country for frequency, average speed, and comfort. No other form of public transport is relied on to such an extent. That is the reason for the requirement that proposed withdrawals of railway passenger services must be submitted for examination to Transport Users' Consultative Committees and be approved by the Ministry of Transport.

The Role of the Canadian Pacific

THE contribution of the Canadian Pacific to the economy of the United Kingdom was one of the many points made by Mr. N. R. Crump, President of the C. P. R. Company, speaking as the guest of honour at the Institute of Transport 39th anniversary luncheon last Tuesday. He reminded his hearers that the substantial British investment in Canadian Pacific created a constant flow of dollars to the U.K.; and that his company was a good customer of Britain, where, in the past five years, C.P.R. purchases had averaged over \$14 million a year. He also defended the principle of private enterprise with some sound arguments, which must have been heard with nostalgia by many of his audience. Certain of his remarks, which include mention of recent technical and commercial developments on the C.P.R., are summarised on another page. Attendance at the luncheon, by 651 people, was a record for this function. Mr. Harold Watkinson, Minister of Transport & Civil Aviation, and four of his predecessors were present, besides many of Mr. Crump's fellow countrymen, the Chairmen of the British Transport Commission, Sir Brian Robertson, and of London Transport, Sir John Elliot, and many serving and retired senior officers of railways at home and overseas.

Nationalisation

THE short "Report on Nationalisation" issued by the Federation of British Industries includes some sound observations on the failure of certain nationalised industries—but not that of the railways—to achieve efficiency by paying their way; on the difficulty of finding a satisfactory method of accountability to Parliament; on the fallacy that nationalisation must of itself improve labour relations; on the mistaken belief that the national interest is served by low prices irrespective of cost; and on the adverse effect on capital development of Labour threats to nationalise industries. Railways, however, differ so much from other industries that many of the findings of the report cannot properly be applied to them. As regards efficiency in output, the report quotes net ton-miles per engine-hour in traffic, which shows much improvement compared with 1938. The statistic is not given for any year before 1938. If these technical figures are given, they should be given in full, and with explana-

tions. The whole question of nationalisation of railways requires to be treated separately.

European Summer Passenger Services, 1959

ELECTRIFICATION of further sections of the German Federal Railway will result in the acceleration, next summer, of the "Ostend-Vienna," "Rheingold," and of other expresses connecting with British Railways Continental services. To be able to leave Vienna at 6.50 p.m. and reach Victoria the following evening via Ostend and Dover, with electric haulage most of the way to Ostend, is a remarkable feat. The cuts in the journey times of the "Rheingold" should increase the popularity of this attractive route to Switzerland and Italy by the Harwich/Hook night service and up the Rhine Valley. Apart from these improvements, however, the decisions of the European Timetable & Through Carriage Conference held in Leipzig last month do not seem remarkable. The basic pattern of the major long-distance international expresses apparently is to remain the same. Much has been done to improve international services over shorter distances by introducing the "Trans-Europe Express" (T.E.E.) high-speed diesel services. One may wonder whether it is felt that all who desire speed go by air over distances greater than those over which the T.E.E.s. can provide competitive services. If that is so, and the "Orient," "Nord" and similar trains cater only for the less hurried, it is time to consider far-reaching changes to increase their comfort.

United States Railway Mergers

THE movement towards the merger of some of the larger railway systems in the United States is gaining momentum. The latest to be considering such a move are the Atlantic Coast Line and Seaboard Air Line Companies, which run parallel down the eastern seaboard from Richmond, Virginia, south to Florida. The Seaboard operates 4,150 route miles and the Atlantic Coast 5,300 miles; their respective operating revenues for the first half of 1958 were \$78,116,068 and \$76,482,771 respectively. An amalgamation of these two would make the eighth largest system in the United States; or, if the Louisville & Nashville, of whose stock the A.C.L. owns one-third, were included, the fifth largest. Among other large-scale merger plans now pending, that of the Great Northern, Northern Pacific, Chicago, Burlington & Quincy and Spokane, Portland & Seattle Railroads may be ready for submission to the Interstate Commerce Commission before the end of this year. The studies of the Pennsylvania-New York Central merger are now nearing the point when the proposition can be put before the shareholders. A third proposal for amalgamation, that of the Delaware & Hudson, Delaware, Lackawanna & Western and Erie Railroads has been the subject of study by consultants for the past 21 months, and the results of their work are now in the hands of the three railway boards concerned.

Rail Welding at Dinsdale

THE installation of long-welded rails on British Railways main lines as track renewals become due, is adding much to passenger comfort and affording substantial economies in maintenance. Their installation should be greatly accelerated on the East Coast main line by the construction of a new rail welding depot at Dinsdale, near Darlington, North Eastern Region. The welding of 60-ft. rails into continuous lengths of 300 ft. or more will be undertaken. Other work to be performed at the depot includes dismantling of old track and the assembly of new 60-ft. lengths of prefabricated track which will still be required for certain sections of the line. The facilities available and the methods of welding are the subject of an article on page 597. The depot can deal with 95-lb. B.H., 98-lb., and 109 lb. F.B. Annual output will be some 55 single track miles of continuous welded rail and 35 miles of pre-assembled 60-ft. lengths of track. The principal machines and tools installed are nearly all automatic and very little manual labour is involved.

Diesel Maintenance at Stratford

ALTHOUGH designed specifically for the maintenance of diesel railcars and diesel shunting locomotives, the recently completed diesel maintenance depot at Stratford, British Railways, Eastern Region, is also being used at present for the servicing of main-line diesel locomotives. In accordance with the practice now general in British Railways new diesel sheds, rails of the three tracks within the depot are carried on piers and beams; this, combined with low-level working areas between the tracks, gives easy access to the engines and transmissions of diesel railcars, which are slung under the frames of the vehicles. The power units of the main-line locomotives are mounted above the frame, and so movable aluminium stages running in grooves on the depot floor are used in their maintenance. Particular attention has been paid in the design of the building to the provision of natural light by wall and roof glazing, although for inspection work floodlighting has been installed along the side of the pits. The need to stock a variety of spare parts for possibly 12 different types of vehicles necessitates an efficient method of store-keeping. The components are coded and identified by a system of colour identification. How far this method will be applied at other depots remains to be seen.

Pantographs

PERHAPS the French National Railways speed records of 1955 did as much as any one thing to draw attention to pantograph performance and current collection at high powers and high speeds as required today with main-line electric locomotives; but for four years before those records O.R.E. had two reporters, and then a committee, investigating possible improvements in the structure of pantographs and in the collection through them of a.c. and d.c. Over a dozen recommendations eventually were made in relation to desirable characteristics to get good contact and an adequate factor of safety at high speed, and as given in the first report of the O.R.E. committee (question A.3) these may be summarised as: a system of articulation with a low moment of inertia; a simple frame and base construction with good lateral rigidity; a stable form of collector pan of small mass; two contact strips; good adaptability in following the contact wire; damping of pan movement; adequate contact pressure; a contact pressure independent of the lifting height of the pantograph; a narrow pantograph frame; a certain increase of aerodynamic pressure, with rising track speed; controlled and ample raising and lowering speeds; sufficient holding-down force when lowered; a safeguard which operates by breaking in case of damaged overhead equipment; and an auxiliary contact bar to prevent a damaged contact strip from catching the overhead equipment.

Jubilee of New Zealand North Island Trunk Line

THE final opening ceremonies took place in New Zealand 50 years ago of the North Island Main Trunk Railway, completing the 425-mile link between Auckland and Wellington. The first sod had been turned on April 15, 1885, by the then Prime Minister, Sir Robert Stout, and the last spike was driven on November 6, 1908, at Maunganui-o-te-ao by Sir Joseph Ward, his successor in office. From November 9 a two-day regular public service for passengers was provided, but not by through trains, and the journey was actually longer than the combined sea and rail journey via New Plymouth. Finally, on February 14, 1909, a service of through express trains was inaugurated, taking 19½ hr. for the journey. One of the most fascinating features of the route is the seven-mile Raurimu spiral, 200 miles south of Auckland, which is best seen from the "Daylight Limited" trains that run during the summer holidays. With a gradient of 1 in 50, it ascends 430 ft. between places only 1½ miles apart in a direct line. This is but one of many remarkable engineering achievements on the route, including both long and high viaducts. Makatote viaduct, 860 ft. long and 258 ft.

high, was for 31 years the highest in New Zealand, but in 1939 was exceeded by the 318-ft. high Mohaka viaduct on the Napier-Gisborne line.

Work Study

EXTENSION of the application of work study techniques so as to make the most effective and economical use of men, materials, and equipment will undoubtedly increase the efficiency of British Railways and ultimately benefit the staff. There is bound, however, to be opposition amongst the more conservative-minded to any step which may involve changes in the traditional ways of doing things. The fact that work-study means, not "slave-driving," but co-operation, is stressed by "The Man on the Line" in the current issue of *British Railways Magazine*. The new equipment and processes and new methods of operating now being introduced on British Railways under the modernisation plan provide great scope for work study; this has been demonstrated by what has been done already in practically every department. The urgent need for even greater effort to achieve efficiency is apparent from the most recently published traffic receipts, to which "The Man on the Line" draws the attention of his readers. As he points out, work study is not a cure-all, but it can effect much which results in economies and better service to railway users, and should be given a chance to do so.

Two-Stroke Diesel Engines for British Railways

BY introducing the 1,200-h.p. Type "2" diesel-electric locomotive built by Metropolitan-Vickers-Beyer, Peacock Limited, with Crossley two-stroke vee-eight engine, described on page 594 of this issue, British Railways have departed from their established practice of placing in service conventional diesel engines of exclusively the four-stroke type for locomotives designed for mixed-traffic duties. Apart from the 3,300-h.p. Deltic locomotive with its twin Napier two-stroke engines, British Railways previous first-hand experience of two-stroke engines has been confined to the Derby-built diesel-electric shunters fitted with much smaller Crossley six-cylinder in-line engines. Now they have an opportunity of making a direct comparison between conventional two-stroke and four-stroke diesel engine locomotive types of comparable power employed on similar duties and it will be interesting to learn in time whether any change in long-term operating costs eventually justifies this application. The Co-Bo wheel arrangement which has British Railways designation "C-B," is an interesting and easy-to-recognise feature. All five axles are driven by motors connected permanently in parallel to give a maximum tractive effort of 50,000 lb.

Problems of Electric Locomotive Manufacture

THE drastic reorganisation of locomotive builders' works necessitated by changes in motive power are illustrated in the Schneider works at Le Creusot of Le Matériel de Traction Electrique. A review in our contemporary, *La Vie du Rail*, of 120 years of locomotive production at Le Creusot describes the present monthly output of six electric Bo-Bo locomotives and three diesels of two different types. Electric locomotive production at Le Creusot requires assembly of electrical components from associated and other manufacturers in parts of France as widely separated as Tarbes and Lille, besides Switzerland and Germany. The six Bo-Bos are similar in externals but differ considerably in their erection programmes, as three are 1,500 V.d.c. machines of the "9200" class and the other three are "16000" class 50-cycle locomotives for the Paris-Lille electrification. Whereas the main electrical items of the d.c. equipment are contained in a single, centrally-installed apparatus block, in the 50-cycle locomotives the transformer with its tap-changing and cooling services occupies this position and a much wider range of equipment has to be mounted as separate units. This is a consequence of the change in conception of the electric locomotive which has accompanied the development of

50-cycle traction: the cab interior which once housed only motor control gear and a small number of auxiliary machines must now accommodate a mobile rectifier sub-station.

Parliament and the B.T.C. Finances

PARLIAMENT was deprived of questioning the Minister of Transport & Civil Aviation, Mr. Harold Watkinson, on his serious statement on the British Transport Commission finances, as he chose to give a written reply which precluded this. Full opportunity to discuss the working losses on British Railways, estimated at £85,000,000 for the current year, will arise when the next transport borrowing bill comes before Parliament. This is to be introduced shortly, and, because the Commission's borrowing powers are nearly exhausted must receive its Second Reading before the Christmas recess, so that it can become law early in the new year. Certainly, there is much for Members to discuss. The size of the deficit comes as no surprise to them. In fact, during the debate in reply to the Queen's Speech, both the Leader of the Opposition, Mr. Hugh Gaitskell, and its front-bench transport spokesman, Mr. Ernest Davies, forecast it when they fixed the blame for falling railway traffic on the Government economic policy. No doubt many Members will wish to inquire into the reasons for the mounting deficits and will ask whether they are to expect their continuance indefinitely, and what amounts to permanent subsidisation of the Commission, to which they are unlikely to readily agree; or whether further steps can be taken to minimise the losses and ensure that the anticipated break-even date of 1962 stands.

There are two possible approaches; both have their adherents in Parliament. One is to pursue economies ruthlessly, that is, drastically to cut the uneconomic services; to accept that certain traffics are irrevocably lost and, therefore, that the capital investment programme directed at railway modernisation should be reviewed, in that it is no longer fully justified. The other approach is to make every effort to capture traffic because, if it contended, salvation does not lie in economies but in obtaining higher revenue, and as only a comparatively small rise in traffics is required to eliminate the deficit, it is not impossible of achievement. This is the view held by both the Minister and by his Chairman of the Commission, Sir Brian Robertson. It justifies the continuance of the modernisation programme. On the passenger side it is already paying dividends; and it will do so on the freight side when an improvement in the economic situation results in greater despatches of raw materials and finished products—provided that the railways maintain vigorous efforts in the commercial field to capture traffic. Some people are disappointed that their greater flexibility in charging, before the effects of the recession were felt, has not brought better results. There had not been time to exploit it as yet.

In the need to attract traffics speedily, some revision of the modernisation programme is accepted as necessary, a shift of emphasis, to concentrate on quick results. Conversion to diesel traction affords returns far more quickly than does electrification; and except where schemes have already been started, there may be a case to delay the latter in favour of diesel operation. Similarly, schemes designed to speed and cheapen freight operations now call for priority. In all the circumstances Parliament would be wise not to interfere with the modernisation programme at this stage, but to vote the increased borrowing necessary to enable the additional permitted amount to be spent and the programme to be accelerated. This no doubt it will do, despite murmurings on the back benches by those who have doubts as to whether such large expenditure should be incurred without a greater degree of public control over it.

In Parliament there is likely to be greater questioning of the borrowing necessary to finance deficits and more reluctance to vote the money. When it voted £250 million under the Transport (Railway Finances) Act, 1957, it did so on the understanding that it would be sufficient to tide the Commission over until modernisation was sufficiently effective to enable it to break even. A seven-year period

ending in 1962 was fixed. The Opposition expressed doubts as to the adequacy of the amount, and in the event its pessimism has proved justified. To the £118 million drawn for two years, 1956 and 1957, £85 million must be added for 1958, leaving less than £50 million for the remaining four years. It is now clear that the deficit fund it voted for seven years will be exhausted during the fourth year and of that Parliament will understandably take a poor view. It may be because he foresaw this that the Minister avoided questions last week and has not yet disclosed as to how the deficits are to be financed, if they continue, as now appears certain, when nothing remains in the deficit fund. He has not stated whether he proposes to amend the previous Act so as to increase the amount of the borrowing permissible for deficit financing, or whether the Commission is to be left to its own resources. Having accepted that the fund is inadequate to fulfil its original purpose, the straightforward policy would be to increase it, and ensure that it is adequate until the break-even date is reached. To this course Parliament would certainly do well to agree.

Increased Deficit for British Railways

THE serious decline in British Railways freight traffic has been apparent for many weeks to those who have read the series of articles in this journal on this subject and on the whole problem of railway receipts. The working deficit on British Railways for the current year is now estimated at about £85 million, or £20 million more than that for 1957. This is despite a slight increase in passenger receipts, which are reasonably buoyant. The principal reasons for the increase in the deficit are the catastrophic fall in coal class and mineral traffics; the falling-off in merchandise which has been apparent for some time; and steady increases in costs. The matter is stated clearly in the report from Sir Brian Robertson to Mr. Harold Watkinson, circulated in Parliament and reproduced in our Parliamentary columns this week. Unwelcome as is the news, it is much better that it should be made known at an early stage, and that the British Transport Commission should let all concerned know the position.

The reduction in activity in the iron and steel industry has been such that the effect on the railways must be severe; there have also been the reduction in coal movement, and the greatly curtailed activity in many fields of industry. The full impact of the recession is now being felt by British Railways, the drop in whose revenues shows its extent and depth. The recession has been disguised in employment figures by the hoarding of labour by large employers. These have been reluctant to lay off skilled operatives whom it would be difficult to recruit when conditions improve again. In the hopes that the recession will not last long, they have retained this staff, so that the much reduced activity of these firms is not shown in the higher unemployment figures which would be apparent if they had parted with labour when it first became redundant.

The steps taken by the Government to expand credit facilities are recognition of the need to stimulate consumption by all reasonable means. Although they should have a remedial effect in due course, no immediate effect can be expected. Some time must elapse before the additional credit facilities result in higher production figures. The outlook for railway freight traffics in the meantime, until the position improves, is not hopeful, as regards the carriage of either raw materials or finished products. The adverse position of the steel and coal industries, which are major sources of traffic for the railways, does not seem likely to improve appreciably in the near future, and recovery when it begins will probably be a long process as far as any great increase in consignments by rail is concerned.

There is no doubt that the Commission has long been alive to the situation and has been making strenuous efforts to offset the fall in revenue by effecting economies, and by trying to secure as much as possible of the traffic offering. The point has been reached, however, when the

amount of traffic which can be secured now by commercial effort is small, however rigorous the steps taken to capture traffic. Matters have gone too far. To state that the modernisation plan could have been launched much earlier and so have better equipped the railways to weather the present storm, is irrelevant. So are speculations on the effects of nationalisation on the efficiency of British Railways. Neither of these exercises in backward-looking is of value to the railways at the present stage. Efforts must be directed to doing what is going to be of help now and in the future. An improvement in traffics must depend on a rise in the level of industrial activity combined with the railways' own efforts to modernise services and to secure the goodwill of the trading and travelling public through the high quality of the services provided.

The recession has come at a particularly unfortunate time for the railways, when the modernisation plan was getting under way and some of its consequences in the form of increased freight traffic might have been expected to be felt. This was the case with passenger traffic, of which a considerable increase was engendered by placing railcars in service. But nobody could have foreseen the recession. There are grounds for hoping that it has passed its peak, and that the stimuli applied by the Government will result in an upturn in the trend of trade at the turn of the year.

The three major factors now involved, as regards the railways, are the coal and steel industries, and the export trade, all inter-dependent. An important factor affecting the railways must be stability of labour costs, not only of railway staff but in industry generally, where it directly affects prices. On this stability depend the success of efforts to recover and promote export trade. High labour costs in this country are adversely affecting its export trade. A good many foreign competitors in overseas markets have succeeded in keeping their labour costs at a level which enables them to quote prices which secure business.

Indian Railways Fuel Problems

IN 1957 the Government of India appointed a committee to enquire into matters such as the inferior quality of the coal supplied to the railways, and the increase in fuel consumption and cost, and to recommend measures to combat these increases. The committee was under the chairmanship of Mr. Karnail Singh, Member Engineering, Railway Board, and its members were Mr. Ratan Lal, Director, Transportation, Railway Board; Dr. J. W. Whitaker, Officer on Special Duty, Mining Research, Council of Scientific and Industrial Research; Mr. P. M. Nayak, Indian Civil Service, Coal Controller; Dr. A. Lahiri, Director, Central Fuel Research Institute; and Mr. D. P. Mathur, Member-Secretary. The committee recently issued its report, summarised below.

Because the inferior quality of the coal supplied to the railways was responsible for an increase of 10-11 per cent of their fuel bill, the committee first examined this aspect and found that the coals supplied did not conform to specification. It was, however, almost impossible to check the quality, as the coal came from such a large number of collieries. The committee therefore recommended that the railways be allowed to select the collieries to supply them, to set up their own organisation to prevent the loading of inferior coals at pithead, and to take direct action against those collieries supplying inferior coals.

The report discloses that in 1956-57 the pithead-plus-freight cost of coal was Rs 44.2 crores (about £33 million) or nearly five times the cost in 1926-27. Consumption closely followed the volume of traffic 1926-27 to 1940-41, but then increased at more rapid rate until 1947-48, after which year it steadied and became proportional to the traffic until 1952-53. Since 1953 it has shown a gradual improvement, in fact, though traffic increased by 27 per cent 1952-53 to 1956-57, consumption rose by only 19.5 per cent, thanks to better utilisation. Due to rises in pithead prices and freights, however, the corresponding increase in cost

went up by 37.7 per cent, or by all but Rs 12.1 crores during these five years, nearly half of this figure being due to increase in pithead and carriage costs, and the remainder to the greater volume of traffic.

As there was every indication that this upward trend would continue and that by the end of the third Five-Year Plan in 1965-66, railway requirements would be about 26 million tons—practically double the actual figure in 1956-57—the report recommends a series of steps to prevent any increase disproportionate to the rise in traffic, and to restrict consumption to a maximum of 26 million tons.

By that time there is likely to be a serious shortage of high-grade coals for railway consumption and further deterioration thereafter. To meet this situation the committee recommends the washing of inferior varieties, and the Central Fuel Research Institute has submitted proposals for the establishment of five washeries for railways.

Though present fuel consumption trends are considered favourable, the committee suggests improved methods of estimating consumption, the strengthening of security forces at and the provision of enclosures round running sheds, and strong disciplinary action against staff committing malpractices. The better training of the staff in firing and maintenance is also urged, and the replacement of contract by departmental labour for the handling of coal and ashes is considered desirable at sheds where coal-pilferage is serious.

The most important step recommended by the committee to curb the rise in coal consumption and costs is a progressive replacement of steam haulage by diesel and electric traction. In fact, the committee considers that by 1975 not more than 50 per cent of railway transport should be steam, and that of the other 50 per cent 30 per cent should be electric and 20 per cent diesel. With this end in view it is recommended that high priority should be given to the indigenous design and manufacture of diesel plant and equipment and to increased production of diesel fuel and lubricants.

On the electrification side the committee is of opinion that development of adequate capacity for the manufacture of heavy electric machinery and traction equipment within the country is imperative. Moreover, co-ordination in planning of power development, transmission, and power and sub-stations is necessary for the supply of both railways and other industries.

Danish State Railways in 1957-58

THE Danish State Railways are an example of an efficiently operated system which in 1957-58 incurred a deficit largely because of unavoidable increases in expenditure, including wages. The system is subject to much statutory regulation. Factors which must be borne in mind are the relatively short hauls possible in Denmark, even including journeys by the train ferries, and sea and road competition.

During the year ended March 31, 1958, there was an increase of about 2 per cent in the number of passengers, mostly in the Copenhagen suburban area, where 76,100,000 passengers were conveyed, compared with 74,600,000 the preceding year. This was characterised by a considerable increase in season and weekly ticket and by a slight decrease in ordinary ticket issues. The number of tickets sold to or from foreign countries increased from 3,000,000 to 3,500,000 mainly in tickets sold from Swedish to Danish stations. Reduced fare facilities have included the "65 tickets," for all people over 65 years of age.

Principal results are:

	1956-57	1957-58
Miles open	1,737	1,750
Passengers (millions)	107.8	110.1
Goods (million tonnes)	7.15	6.99
Train-miles (millions)	24.0	24.0
Operating ratio	105.7	105.3
Million kroner		
Passenger receipts	241.0	254.9
Goods	177.3	174.3
Gross	506.9	527.9
Working expenditure	536.1	556.0
Net deficit	29.2	28.1
Deficit after charges	81.9	96.1

Goods traffic was down by 2 per cent, but because of

winter conditions in March of 1956, the preceding year's goods traffic were exceptionally high. Goods traffic to and from other countries increased about 5 per cent, due entirely to heavy sugar beet consignments from Denmark to Germany in the autumn of 1957.

Despite a reduction in staff of about 600 (2 per cent), expenditure on wages and salaries showed an increase of 8 million kr. because of increases authorised in April and October, 1957. The result is that the increase in gross receipts was almost balanced by increased expenditure.

Of the 24 million train-miles diesel traction accounted for 165 million, an increase of about 9 per cent over the preceding year, and the result of placing in service additional diesel-electric locomotives. Fuel prices rose, but the increase in diesel haulage made possible a reduction on the total expenditure on fuel. Only about 5 million train-miles are now steam-operated.

The ferry services are still increasing. The 25 vessels made 45,500 round trips. The Great Belt crossing was relieved by the new motor-car ferry service between Halskov and Knudshoved. On the two routes (respectively 16 and 12 miles) 48 round trips a day were made on an average, conveying 5,226,000 passengers, 766,000 motor-cars, 38,300 railway passenger vehicles and vans, and about 360,000 goods vehicles. The State Railways' bus routes are growing in number and traffic; the 531 buses now run on 3,780 miles of route.

Heat-Treated Rails

THERE has been, in recent years, a considerable increase in the heat treatment of rails for U.S.A. railways. Apart from controlled cooling, which is applied universally as a protection against the development of transverse fissures, rail-end hardening is extensively practised, to reduce batter of the rails at the joints. A demand is arising also for the heat treatment of rails throughout their length, particularly for use in sharp curves, so that the periods between rail renewals may be cut down. In the August issue of the U.S.A. monthly *Track and Structures* several railway officers gave their opinions as to the desirability or otherwise of going to the expense of ordering heat-treated rails, and all were agreed that in certain conditions the extra cost was well justified. The precise nature of the treatment was not described, but in one specific case mentioned the addition to the basic price for rails controlled-cooled, end-hardened, chamfered at the extreme ends on the running surface, and drilled for fishbolts, was about 59 per cent.

In 1941 the Clinchfield Railroad installed heat-treated 131 lb. per yd. flat-bottom rail in place of the previous 100 lb. untreated rails in a curve of 8½ ch. radius carrying an average of 18,000,000 gross tons of traffic annually. With the 100 lb. rails it was the practice to scrap the low rails on this curve after 27,500,000 tons of traffic had passed over them, that is, at just over 18-month intervals, and to transfer the high rails to the low side of the track. When the heat-treated 131 lb. rails had been installed, however, 50,000,000 tons had passed over the low rails before it was found necessary to take them out; they were then transposed to the high side of the track, and the high rails to the low side, and both lasted in service until a total of 120,000,000 gross tons had passed over them, when they were finally removed after nearly seven years' service. The monetary saving on this course, due partly to the heavier section and partly to the heat treatment, averaged \$1.32 per ft. of track or \$6,970 per mile. It is of interest that the most rapid wear was in the intermediate period between the passage of 54 and 78 million tons, after which work hardening of the running surface appears to have slowed down the wear rate.

The conclusion reached by the Clinchfield Railroad is that for a first cost increased by 59 per cent for heat treatment, an increased life of 300 per cent may be anticipated if heat-treated rails are laid in any curve of 6 deg. radius (14½ ch.) or sharper carrying traffic on the Clinchfield scale, of from 15 to 23 million gross tons per annum. A representative of the Central Railroad of New Jersey

equally gave it as his opinion that as it is the practice of his line to transpose the high and low rails of heavily trafficked curves of 9 to 13 deg. curves ($9\frac{1}{2}$ to $6\frac{1}{2}$ ch. radius) every two years, and of 5 to 9 deg. curves ($17\frac{1}{2}$ to $9\frac{1}{2}$ ch. radius) every four years, in all such cases the use of heat-treated rail would make economies possible. Moreover, in these days when complete possessions of track for relaying are becoming increasingly difficult to obtain, especially over busy main lines which, with the help of centralised traffic control, have been reduced from double to single track, any development which will extend the periods between relaying or re-railing is worth consideration. The contributors to this symposium agreed, however, that before incurring the added cost of heat treatment, each curve should be considered on its merits, and that the use of heat-treated rails in straight or nearly straight track was not justified.

It was, however, considered advantageous to use heat-treated rails in switch and crossing work, as, for example, in switch stock-rails, point-rails and closures. For track-work subject to exceptionally heavy wear, however, an alloy steel, such as chrome-vanadium (which is having some vogue in American rail manufacture today), is preferable, though this is more costly than heat-treated rail of the normal standard composition. The disadvantage of such alloys is that it is impracticable to weld them by the oxy-acetylene method, so that *in situ* repairs by welding are ruled out.

In view of these American developments, it is surprising that in Great Britain, which for so many years specialised in the heat treatment of rails by the sorbitic process, little or nothing is being done in this realm today. At a relatively small additional production cost, this treatment gave considerably increased rail life; it was summarily abandoned because of the irregular surface hardening that developed in course of use, which had the effect of producing "roaring rails" and noisy running. But in view of the benefits conferred, it is a pity that no research was undertaken with a view to investigating if it were not possible to apply the treatment in such a way that the irregular hardening of the running surface would be minimised if not eliminated. In any event, the worst of the trouble with sorbitic rails was experienced in straight track over which the trains travelled at more or less even speeds; on curves the irregular hardening developed to a considerably less degree, and in certain locations barely at all. The possibilities of the sorbitic treatment might well be examined once again, especially for rails needed for curves and for switch and crossing work.

Diesel Locomotive Design

IN comparison with the amount which has been written on railway oil engines and transmission systems for diesel locomotives and railcars the literature on mechanical portions is negligible, particularly in regard to locomotives. Yet this third of diesel motive power design and construction ranks equal with either of the other two. Poor conception, design or construction of any one can ruin the whole; and though very distinct advances in engines and transmissions have been made on a wide basis in the dozen post-war years, the same cannot be said of mechanical portion design. Undoubtedly there are some outstanding exceptions, both in diesel-electric and diesel-hydraulic designs; but quite a large proportion of diesel line-service locomotives today have a mechanical portion of indifferent characteristics, both as a whole and as to principal details and arrangement.

Therefore the paper *Developments in the Detail Design of Diesel Locomotives* presented by Mr. B. W. Anwell to the Institution of Locomotive Engineers on November 12 is to be welcomed, even though in some respects the field covered is necessarily restricted, being based on Mr. Anwell's own experience with the Crown Agents during the last 10 years. One notices, straight away, from the paper that the Crown Agents are sticking to the solid flycrank pressed on to the jackshaft, whereas experience everywhere else has shown the split crank to be just as

satisfactory, and less expensive to customer and manufacturer. But that is a detail. It is not just mechanical portions proper which are covered in this paper, for there are apposite sections on engine mounting, cooling systems, safety devices, and hydraulic transmissions. Perhaps playing for safety, the author has skated over electric transmissions. Though bogie frames are known to have given trouble in various parts of the Commonwealth, and bogie suspension systems tend to be crude over the same geographical spread, this paper does not deal at length with this subject or with superstructures; but does well cover certain ground which normally is more or less the responsibility of the mechanical portion designer, such as the cooling system, drive and capacities of exhausters and compressors, fan drive and control, equipment room ventilation, and the like. Too often the views of the engine maker are not asked, or scant attention paid to them, on the important subjects of cooling assembly layout and proportions; and it is not unknown for engine makers to be saddled with expensive investigations and modifications to plant which they did not approve in the first case. A directive from the Crown Agents for more effective collaboration in these aspects might well bring useful fruit.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

Design of Diesel Locomotives

November 9

SIR,—Your correspondent Mr. T. E. Scott in your issue of November 7 expresses surprise at British Railways policy; but the policy has performed many somersaults in the last 10 years.

In 1956, British Railways ordered 171 main-line diesel locomotives of 13 types as a pilot scheme to test the suitability of each type before further large orders were placed. Many of these have yet to be placed in traffic. Nevertheless before they ever appeared, further orders for other types were placed; the so-called pilot scheme seems to have been nothing but an opportunity for manufacturers to experiment at British Railways expense. British Railways must now have more than 20 types of diesel locomotive, each type with little in common with another from a spares point of view to do a job that can be done with a dozen steam locomotive types.

Yours faithfully,

J. B. LATHAM

Channings, Kettlewell Hill, Woking, Surrey

Clean Trains

November 7

SIR,—I refer to the editorial article in your issue of October 31. I think I can safely say that I speak for most of the travelling people of Britain when I say that the facilities for depositing litter on trains are negligible. You pick on "the edibles and so on bought by the British public and consumed in trains." Surely if the prices of meals on British Railways were brought down to a reasonable level where they could compete with this sandwich-carrying, then there would be less litter.

You state, "It is desirable that the railways, as a public utility, should be criticised publicly so long as criticisms are fair and well founded, and replies to them given equal publicity." I can only hope that you apply the aforesaid statement in this case and that you give a feasible answer or provide the litter bins.

Yours faithfully,

G. S. STARVIS

21, Redcliffe Gardens, Ilford

[Provision of litter receptacles in coaches is difficult because of lack of space; but that is no reason for dropping litter about the coach. We understand that it is intended to provide receptacles in the compartments and corridors of vehicles to be built in the 1959 programme.—ED., R.G.]

THE SCRAP HEAP

Out of Date Information

Emphasising the importance of accurate and up-to-date statistics of crime, Mr. Peter Kirk, M.P. for Gravesend, said in the House of Commons: "Despite the increase in the statistical staff at the Home Office we are still looking up the trains, not in last year's *Bradshaw*, but a *Bradshaw* about 20 years out of date. We cannot begin to make any progress until we have the latest information quickly provided."

First All-Roller-Bearing Locomotive

What is believed to be the world's first all-roller-bearing locomotive has just been scrapped in the U.S.A. Built for the Timken Roller Bearing Company by the American Locomotive Company, this 4-8-4 steam locomotive ran for test purposes over the tracks of 12 railways in 1930-33. It then passed into the ownership of the Northern Pacific Railway and was the first of many engines with roller bearings acquired by that company. When its last run was made in the autumn of 1957, it had completed nearly 2,250,000 miles. During its three years of trial running it bore the number 1111 and was familiarly known as "Timken's Four Aces."

Tube Railway Asphyxiation

A medical journal has renewed its attacks on the Waterloo & City Electric Railway, on the ground that, owing to the lack of ventilation, passengers on any train which might break down between the terminals would possibly be asphyxiated. It admits, however, that this danger is obviated on the Central London by the lifts which will act as enormous pumps. Discussing the matter yesterday, a disgusted Stock Exchange member remarked, "A railway jobber requires now to be some-

thing of an engineer, an export accountant, and a good deal of a Parliamentary agent, and if to this is to be added the necessity of studying the medical Press in order to keep up with the times, life won't be worth living."—From "The Financial Times" of October 29, 1898.

"The Southern Belle"

It is hoped that the King will again visit Brighton and thus help the revival of its popularity as a winter resort. Some of the big hotels are already full and great things are expected from the new train which does the journey from London in an hour.—From "The Evening News," November, 1908.

[The new train was the "Southern Belle," introduced on November 1, 1908, to the jubilee of which we referred editorially in our October 31 issue.—Ed., R.G.]

Centenarian Ex-Stationmaster

A birthday greetings telegram from Sir Brian Robertson, Chairman of the British Transport Commission, was sent on November 7, his 100th birthday anniversary, to Mr. W. S. Warren, of Uley, Gloucestershire. He was Stationmaster at Dursley when he retired in 1923, after a railway career which began with the Midland Railway at Masborough, Rotherham, in 1877, as a porter at 18s. a week. He later became Stationmaster at Salford Priors, Warwickshire, was promoted to Dursley in 1901, and spent the rest of his working life there.

Saundersfoot Railway Car Park

Twenty years after its last train ran, the Saundersfoot Railway & Harbour Company retains its active interest in transport as a source of revenue by providing a car park on the northern side of its quay. The charges are shown

on the notice board, of which a recent photograph is reproduced. The company was incorporated on June 1, 1829, by an Act of Parliament passed in the 10th year of the reign of George IV, and is thus probably the oldest surviv-



Photo]

[Andrew Dow

Car park charges of a railway company which owns no line

ing railway company in Great Britain (the Baltimore & Ohio Railroad Company in the U.S.A. was incorporated on February 28, 1827). Reference to the company was made in our October 3 issue, when an inn sign depicting a Saundersfoot locomotive was illustrated. Although the Saundersfoot Railway never carried passengers, the car park charges show that it now derives revenue from buses.

Victoria Round-up

(Re-development plans for Victoria Station include a new hotel)

It's rumoured that the powers that be (The B.T.C. to you and me) Have, so to speak, in contemplation A hotel for Victoria Station, Which fills with apprehensive chill The Chatham Rooms and Silver Grill. Meanwhile, the venerable shades Of roaring, Vic-Edwardian blades Who congregate within the walls Of "Grosvenor's" immemorial halls, Are, not unnaturally, perturbed; The forecourt pigeons, too, disturbed, May transfer their time-honoured base To pastures new in Hudson's Place There's bound to be, if this comes true, Gnashing of teeth at Waterloo; And, since all gain betokens loss, It's likely to make Charing Cross. But, what of her whose honoured name Adorns this rendezvous of fame? Although she may not have enthused, Would the old Queen have been amused?

A. B.

Steam Working in Victoria



Photo]

[John Buckland

Down passenger train to Yarram near Bena, Victorian Railways, hauled by "R" class 4-6-4 locomotive, built by the North British Locomotive Co. Ltd. This service is now worked by a diesel railcar

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Electrification

Mr. Kripal Singh, General Manager, Eastern Railway, recently announced that electrification of the northern suburban sections of the Sealdah Division, Sealdah-Ranaghat and Dum Dum-Bongaon, had been sanctioned and would be completed before the end of the second Five-Year Plan period. The work will be started as soon as the necessary technical staff and material are available.

The cost of electrification for these two sections will be some Rs.7-16 crores (roughly £5.3 million). Of this sum locomotives will cost about one-half.

Four other sections will also be electrified by 1961. These are Ondal-Moghal Sarai on the Eastern Railway, and Asanol-Rourkela, Rajkhaswan-Barajamda, and Khargpur-Tatanagar on the South-Eastern Railway. Electrification of these sections will facilitate the movement of coal and ores from the rich mineral belt of the Bengal-Bihar zone to the steel plants.

VICTORIA

Mobile Living Quarters

A total of 28 obsolete passenger carriages is being converted by the Government Railways into mobile living quarters for workers engaged on the standard gauge line between Melbourne and Albury.

Separate quarters consisting of bed, wardrobe and bedside locker are provided for seven men in each coach to which is attached a communal living room and kitchen. The latter is equipped with a cooking stove, a table and forms, two cooling safes, crockery racks, and stainless steel sink. Each occupant has his own separate food locker.

Smaller units are also being built by cutting old carriages in halves and mounting each section on obsolete wagon underframes fitted with automatic couplers. These provide two men with a bed each in a self-contained coach with amenities such as a shower, stove, stainless-steel sink, cooling safe, and wardrobes.

Express Freight Service

An express freight service has been introduced between Melbourne and Mildura. The first train left Mildura at 5 p.m. on October 13, loaded with fresh fruit and vegetables, picked a few hours earlier, and arrived in Melbourne at 3 a.m. the following morning, having completed the 352-mile run in a record 10 hr. Produce was loaded at Merbein, Mildura, Irymple, Red Cliffs and Carwarp, and by the time the express run began at Hattah, 2,000 cases and bags of citrus fruit, tomatoes,

broad beans, peas, pumpkins and fish were aboard.

In the opposite direction, a similar express freight train left Melbourne at 6.40 p.m. loaded with general merchandise and other perishable goods, scheduled to arrive in Mildura at 5.40 p.m.

The object of this new fast freight service is to recapture some of the profitable business in fast perishable freight, which has been lost to road transport. The new service operates from Mildura on Mondays, Wednesdays, and Fridays, and from Melbourne on Mondays, Tuesdays, and Thursdays. It is the first time in the history of the Victorian Railways that freight trains have been able to travel at passenger-train speeds. Freight wagons used on the service have been fitted with passenger-type bogies to allow speeds of 70 m.p.h. to be attained.

WESTERN AUSTRALIA

Centralised Traffic Control

The first step in the operation of C.T.C. on the Western Australian Railways was taken on October 5, when the initial section between Armadale and Byford, a distance of five miles, on the South-Western main line was brought into use. A further five miles has since been put into service, and other sections will be cut in as they are completed, until Pinjarra is reached, a distance of 35 miles.

The remote control from Perth of the initial section has been very successful and the complete installation will be a great advantage to train operation over this busy section. The new equipment is designed to meet all the requirements of the South-West main line for many years to come, and has precluded the necessity for the duplication of tracks.

NEW ZEALAND

Kaimai Tunnel Scheme Deferred

A proposal for a long tunnel through the Kaimai Hills between Matamata and Tauranga, to reduce the distance between Hamilton and Tauranga from 94 to 62 miles, has been deferred. It was announced in August that a report by the Commissioner of Works, Mr. F. M. H. Hanson, and the General Manager of Railways, Mr. A. T. Gandell, had been accepted by the Government. They reported that the volume of traffic likely to be carried by the deviation was directly related to the rate of development of the port of Tauranga, which was "not sufficiently clear and assured at the present time to allow of its future influence on transport being predicted." They recommended that the Government review the project when transport requirements

to and from the Bay of Plenty were more clearly defined.

Two alternative but similar schemes were considered. The preferred scheme provided for a 15-mile railway, including a 5½-mile tunnel, between Waharoa, 33 miles from Hamilton on the line to Rotorua, and Apata, 13 miles west of Tauranga on the Paeroa-Taneatua line. It would have cost at least £5½ million. The distance from Auckland to Tauranga would have been reduced from 179 miles to 147, and from stations like Rotorua, Manaku and Kinleith would have been cut by 62 miles compared with the present long haul northward to Paeroa and southward to Tauranga. It would, however, still be a circuitous route from Rotorua compared with the 56-mile main road. Ruling grade on the deviation would be 1 in 70.

The report added that the existing railway route was by no means congested. A very substantial increase in traffic could be handled by conversion from steam to diesel traction without any grading improvements.

New Works at Paeroa

The Minister of Railways, Mr. M. Moohan, has announced approval of a scheme for a new link connecting the Frankton - Thames to the Paeroa-Taneatua line. This would abolish the present need for all trains running between Frankton and Tauranga to be reversed at Paeroa. It would reduce the distance by some three miles and enable train services to be much accelerated. Diesel traction would be introduced in place of steam.

A new station, tentatively called Ohinemuri, would be built about two miles south of the present Paeroa station, at the point where the new connection from Frankton would join the line to Tauranga and Taneatua. This would become the new junction, and Paeroa would become a station on the branch line to Thames. Sidings for interchange of traffic would be provided at Ohinemuri, but goods handling facilities and a locomotive depot would be retained at the present Paeroa station. It was expected that the cost of the work would be met within 18 months by savings in operating expenses.

BRAZIL

Progress with Improvements

Dr. Renato Feio, President of Rede Ferroviaria Federal, has announced that 30,000 million cruzeiros were to be invested in re-equipping the incorporated railways between now and 1960; the last of the 196 diesel-electric locomotives ordered in U.S.A. were expected in December, freeing 500 obsolete steam locomotives, reducing steam traction by 20 per cent, and

effecting economies amounting to 100 million cruzeiros monthly. Diesel traction, improvements to the permanent way and better operating methods, he added, had practically trebled transport capacity over certain principal lines; 18,674 wagons were loaded weekly in August last, against 16,000 in August, 1957.

Comparing the first six months of 1957-58, the receipts of the incorporated railways increased by 780,000,000 cruzeiros this year, but expenditure rose by 931,000,000, because of large-scale purchases of materials, the cost of which exceeded the estimates by 712,000,000. The amounts paid in wages and salaries decreased by 265,000,000 cruzeiros.

During the process of re-classifying the 140,000 employees of the incorporated railways 10,000 were found to be surplus and are being re-distributed.

UNITED STATES

Joint Working by Minor Railways

An example of how minor lines are co-operating in more economical transport is provided by three railways based on Muskogee, Oklahoma. They are the north-south Kansas City, Oklahoma & Gulf, with a through 327-mile main line from Baxter Springs, Kansas, to Denison, Texas; this is crossed at Muskogee by the 334-mile Midland Valley from Wichita, Kansas, through Tulsa to Fort Smith and Greenwood, Arkansas; while the Oklahoma City-Ada-Atoka, a 104-mile line, brings Oklahoma traffic into the main line at Tupela. This 765-mile group, though each part retains its corporate identity, is owned by the Muskogee Company and is now worked as a single system, providing fast freight transport, in diesel-hauled trains of up to 125 bogie wagons, over the 880 miles between Kansas City and Houston, Texas. The through service involves the use of Missouri Pacific and Texas & Pacific tracks at its two extremities, but relations with the two larger railways are on so sound a footing that motive power is pooled between all three administrations.

A Suburban Plan for Philadelphia

A plan for increasing the use of railway facilities and for decreasing street congestion has been presented jointly by the Pennsylvania and the Reading Railroads to the Philadelphia City Council. It is that the city should pay a subsidy of \$160,000 to the railways in exchange for the provision of a more frequent service on the Chestnut Hill suburban line at reduced fares, over a trial period of six months.

Seating accommodation in the trains would be increased; the rush-hour and off-peak frequency of service would be increased by 54 per cent on the Pennsylvania and 9 per cent on the Reading; the fares would be reduced to 30 cents from any suburban station into the city; and an extra 10 cents would transfer into feeder buses provided by the

Philadelphia Transportation Company. If the increased service should increase the railway revenue beyond the present average figure on the lines concerned, the difference would be repaid to the city. Of the \$160,000, \$113,000 would be due to the Pennsylvania and \$47,000 to the Reading.

This plan differs from that in Boston, where \$900,000 is being paid by the city and outlying communities to meet in part the loss of the New Haven Railroad in operating the Old Colony line. The Philadelphia plan will not compensate the railways for their present losses, but will enable the effect to be assessed of providing additional service at lower cost to the passenger.

ITALY

Messina-Catania Electrification

Electric traction was inaugurated on September 28 between Messina Central and Catania Central, a distance of 59 miles. The principal trains over this section have been slightly accelerated as a result, but overall journey times to Syracuse are largely unaffected because of the need to allow time for changing locomotives at Catania.

SWITZERLAND

Accommodation on Rhaetian Railway

Saloon accommodation will be provided during the coming winter sports season on Rhaetian Railway trains between Landquart and Klosters and Davos and between Landquart or Chur and St. Moritz.

Second St. Gotthard Tunnel

Construction southwards from Goeschoenen Station of a second bore parallel to the St. Gotthard tunnel has given rise to speculation as to the build-

ing of a second tunnel under the pass. The Swiss Federal Railways state that the new tunnel will lead into the main, double-track bore 650 ft. from its northern portal. It will accommodate a shunting loop. A new tunnel under the St. Gotthard pass is projected, but probably for road traffic.

HUNGARY

New Rolling Stock and Equipment

By the end of this year 37 steam and 11 diesel locomotives, 101 passenger coaches and 1,420 goods wagons will have been placed in service. Next year, 75 more diesel locomotives, one multiple-unit diesel train and 20 diesel railcars, 170 passenger coaches, and 2,400 goods wagons are to be delivered to the State Railways. Equipment now being acquired includes mechanical handling appliances for goods depots. A new type of rail, 105 yd. long, is being manufactured for the State Railways at the Gyöngyös Point & Signal Works. Electrification of the Budapest-Miskolc line will be completed in 1961.

JUGOSLAVIA

Modernisation Programme

The five-year modernisation programme of the Yugoslav Railways (1957-1961) envisages amongst other improvements the strengthening of a number of main lines to enable the maximum axle load to be increased to 20 tonnes, and speeds of up to 74-87 m.p.h. to be introduced in the case of fast trains. Strengthening work was first started in July last on the double-track Belgrade-Zagreb main line, between Zemun, 3½ miles out of Belgrade, and Golubinci, 25 miles further west. Welded lengths of rails, 2,624 ft. long, are being laid.

New Hungarian Passenger Station



Recently opened passenger station at Györ on the main line from Budapest to Hegyeshalom (see our issue of September 26)

Type "2" Co-Bo Diesel-Electric Locomotives for British Railways

Five-axle five-motor design with two-stroke engine, for mixed traffic duties

THE first of 20 1,200-h.p. mixed-traffic diesel-electric locomotives ordered from Metropolitan-Vickers Electrical Co. Ltd., and numbered D5700 was delivered to British Railways at the end of July, 1958. All 20, numbered D5700-5719, are being allocated to Derby and will handle mixed traffic in the Midland Division of the London Midland Region.

The mechanical parts are being manufactured by Metropolitan-Vickers-Beyer, Peacock Limited, and the electrical equipment at the Metropolitan-Vickers Electrical Co. Ltd. works at Manchester and Sheffield. The locomotives will be fitted with Crossley HST Vee 8 engines; this is the only conventional engine of the two-stroke type being supplied to British Railways for mixed-traffic locomotives, and it will provide a basis for comparing both two-stroke and four-stroke cycle types.

The design and construction of the locomotives are to the requirements of the British Transport Commission under the general direction of Mr. R. C. Bond, formerly Chief Mechanical Engineer, and Mr. S. B. Warder, Chief Electrical Engineer, British Railways Central Staff, British Transport Commission, in collaboration with Mr. J. F. Harrison, formerly Chief Mechanical & Electrical Engineer, Derby, London Midland Region, and now Chief Mechanical Engineer, British

Railways Central Staff. Aesthetic design has been carried out in consultation with Mr. Jack Howe, in association with Mr. Christian Barman, Executive Member of the B.T.C. Design Panel, and industrial design engineers of the Metropolitan-Vickers Electrical Co. Ltd.

There is a full-width body and driving cab at each end. The driving position is on the left-hand side of each cab.

Principal dimensions and particulars are as follow:—

Gauge	4 ft. 8½ in.
Wheel arrangement	Co-Bo
Total weight in working order	97 tons
Length overall	56 ft. 7½ in.
Total wheelbase	42 ft. 7 in.
Bogie wheelbase	12 ft. 1½ in. (Co) and 8 ft. 6 in. (Bo)
Distance between pivot centres	32 ft. 4 in.
Width overall	9 ft. 2½ in.
Height overall	12 ft. 8½ in.
Wheel diameter	39½ in.
Type of bogie	Cast steel with swing bolster
Traction motor gear ratio	15 : 67
Diesel engine	Crossley HSTVee-8
Diesel engine continuously rated h.p.	1,200 h.p. at 625 r.p.m.
Maximum tractive effort at rail	50,000 lb.
Continuous tractive effort at rail	25,000 lb. at 13.5 m.p.h.
Maximum service speed	75 m.p.h.
Minimum curve radius	3½ ch.
Fuel oil capacity (engine and boiler)	510 gal.
Water capacity for boiler	600 gal.
Steam capacity of boiler	1,500 lb. per hr.
Brakes	Metcalfe/Oerlikon for compressed air on locomotive and vacuum on train

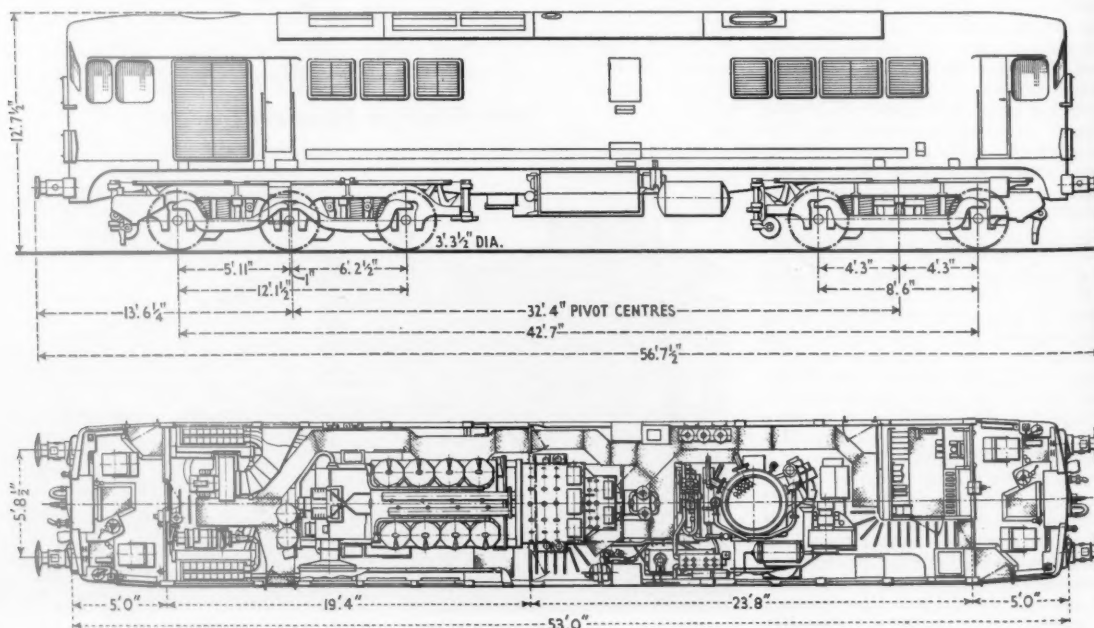
Up to three locomotives can be driven in multiple. Also multiple-unit operation of these locomotives with others now being delivered under the modernisation scheme and fitted with electrical equipment by the General Electric Co. Ltd. and Brush Traction Limited has been arranged by co-operation between the three companies, and will undoubtedly prove a valuable asset to the operating staff.

Performance

The maximum tractive effort is 50,000 lb., and the continuous tractive effort is 25,000 lb. It is these basic requirements that have led to the adoption of the five-axle, five-motor locomotive design.

On notch 10 full power is available between 4.3 and 61 m.p.h., this range being covered by control of generator excitation up to about 25 m.p.h. and by traction motor field weakening thereafter, and the equipment is within the continuous rating at all speeds from 13.5 m.p.h. to the maximum speed of 75 m.p.h. At speeds below the full power range the tractive effort is automatically limited to the maximum by a current limit relay, while above the range the tractive effort decreases in accordance with the inherent characteristic of the motor at sensibly constant voltage.

Some indication of the hauling capability can be obtained from the



General arrangement of the 1,200-h.p. type "2" mixed-traffic locomotive No. D5700

fact that, on test runs before delivery, each single locomotive starts and accelerates to about 10 m.p.h. a 420-ton train (13 or 14 bogie vehicles) on a gradient of 1 in 42; the balancing speed on the level with this weight of train is 60 m.p.h.

Underframe and Body

The underframe, carlines, cantrail, floor and body sheeting form a complete welded structure designed to give maximum strength with minimum material. The underframe is made up largely of folded plate sections welded to form continuous longitudinal and transverse members with diagonal bracing, the transverse members being positioned at the load carrying points.

A special feature is the incorporation of the main fuel and boiler water tanks with the underframe top and bottom plating. In sections not used for tankage the traction motor air ducts are also built in.

Besides the side buffers and centre screw coupling fitted initially, provision is made for the replacement of these items by a central automatic coupler at some future date.

Among the special provisions for lifting and jacking of the locomotive in the event of derailment is the facility for using a single rocking jack at the centre of the underframe.

Division of Body

The body is divided by transverse bulkheads into four main compartments, namely, two driving cabs, an engine and radiator compartment, and a generator and boiler compartment, the upper portion of the bulkhead between the latter two compartments being removable.

Louvres are provided at the various

air intake positions, and where access is necessary these take the form of doors. Panel-type Air-Maze filters are built into the engine air intake duct. Sections of the roof are easily detachable for removal of the power unit, boiler, and auxiliary machines, while a number of smaller panels are provided for access to engine cylinder heads, fuel pumps and boiler fire compartment roof.

Entrance doors are arranged on the assistant's side of each cab and, near to the cab bulkheads, on the opposite side in the engine and generator compartments. End doors conceal the flexible gangway connection used when locomotives are operating in multiple.

Most of the control equipment is housed in a cubicle in the generator compartment and adjacent to the cab.

The engine room floor is arranged so that any spillage of fuel oil or water drains into a tank beneath the underframe, which can be emptied from time to time.

Bogie and Running Gear

Both three-axle and two-axle bogies incorporate one-piece cast steel frames of the General Steel Castings Corporation type. Orthodox body swing bolster suspension is adopted, the flat body centre pivot fitting into a Ferobestos lined cup on the bolster, the latter being hung from the frame by swing links, of which there are eight on the three-axle and four on the two-axle bogies. Tractive effort and braking forces are exerted through renewable liners placed between the bogie transoms and the bolster. Springing is by the semi-equalising method, whereby beams span the distance between the axles, and the bogie frame is supported on helical springs resting on these beams. A number of refinements in

the suspension include the addition of Metalastik bonded rubber sandwiches interposed between the axlebox top and the equalising beams, the introduction of Ferobestos pads into the spring seats, and the use of Woodhead-Monroe shock absorbers in parallel with helical spring and also between body and bogie frame, thus preventing the build-up of hunting conditions.

The wheels are of the pressed disc type with separate tyres profiled to British Railways standard. Axleboxes are of the Hoffmann parallel roller bearing type with pads for end location of the axle. They are oil lubricated and fitted with renewable manganese steel liners which slide on similar liners on the horn cheeks. Two of the boxes are fitted with special covers, one for a mileage counter and the other for a speedometer generator.

All wheels have clasp brakes, operated through equalised brake rigging by three cylinders on the three-axle bogie and two cylinders on the two-axle bogie. All the cylinders are mounted on the headstocks.

Grouped nipples are provided for the grease lubrication of the various moving parts of the bogie.

Cab Equipment

Instruments comprise a main generator ammeter and engine tachometer, brake gauges and speedometer. Three indicator lights, "engine stopped," "wheelslip" and "alarm," follow the standard system introduced in locomotives being supplied to British Railways. Each lamp is normally dim, and comes up to full brilliance under fault conditions. The intensity of illumination of these lamps under dim conditions, and also the intensity of the instrument lights, can be adjusted by



British Railways type "2" Co-Bogie 1,200-h.p. diesel-electric mixed-traffic locomotive built by Metropolitan-Vickers—Beyer, Peacock Limited

individual variable resistances to suit the driver's requirements under all conditions between brilliant sunshine and total darkness.

Electric cab heating is by tubular heaters, and there is also a foot warmer at both driver's and assistant's positions. Demisters are provided for the outer front windows, using heated air fed from the traction motor cooling system. The cab roofs are lined with sprayed-on Limpet asbestos covered by Swedish Pegboarding to provide heat and sound insulation. At the engine end the cab bulkhead is similarly treated.

Power Equipment

The power equipment is generally similar to that employed in over 100 Metrovick locomotives supplied overseas, but modified to suit British Railways requirements and to include latest developments.

The Crossley engine which is illus-

Safety devices ensure that the engine is automatically shut down in the event of overspeed, low lubricating oil pressure, low engine cooling water pressure, or high engine cooling water temperature. Twin outlets are provided for the exhaust gases, the positions being chosen such that contamination of overhead contact wiring is avoided.

Generators

The main and auxiliary generators, both direct current machines, are of integral construction with the frame flange-mounted on the end of the engine and the armatures are mounted on a common hollow shaft, which is solid coupled to the engine crankshaft at one end and carried on a single roller bearing at the other.

The main generator supplies power to the five traction motors. Provision is made for motoring from the battery for starting the engine. The auxiliary

sion consists of a link between bogie transom and motor frame. The link is fitted with Silentbloc bushes at each end. A link placed laterally between the bogie side frame, and the motor frame prevents "side slog" of the motor on the axle and thus maintains the good riding qualities of the locomotive, with consequent reduction in wear and tear on the track.

The drive to the axle is through totally-enclosed single-reduction spur tooth gears with a ratio of 15:67; the gearwheel provides for torsional resilience between hub and rim. Provision is made for removal of the pinion from the armature shaft by oil injection.

The motors are force ventilated with cooling air from the traction motor blowers in the locomotive body, which deliver the air via ducting in the underframe and flexible rubber bellows between the underframe and the motors.

Auxiliary Equipment

Compressed air, for operation of the locomotive brakes, electro-pneumatic control gear, horns, window wipers and sanding gear, is supplied by an engine-driven Worthington - Simpson compressor, type VL 79S, driven from the auxiliary generator, as seen in the illustration of the power unit.

Two of the Westinghouse type 4V110G exhausters are provided for operation of the brakes on vacuum fitted rolling stock. Three blowers are fitted. Two of these are Keith Blackman centrifugal fans, one at each end of the locomotive, to supply cooling air to the traction motors in the bogie below; the third is a Davidson steel plate axial-flow fan mounted in a fan chamber in the generator compartment, pressurising the latter for the purpose of force-cooling the generator. All three are driven by identical motors.

A feature of the control, lighting and heating circuits is the use of miniature circuit breakers for protection.

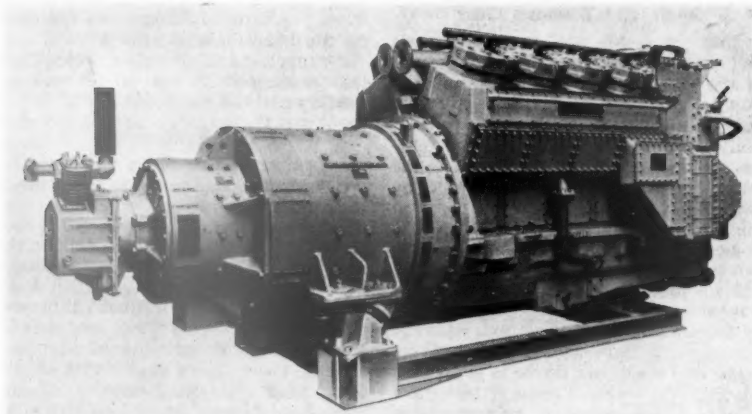
A fault indication system, common to all locomotives supplied under the modernisation programme, is arranged so that in the event of high engine water temperature, low engine lubricating oil pressure, traction motor overload, power circuit earth fault and failure of a traction motor or generator blower, the type of fault is indicated in the locomotive concerned on a panel over the control cubicle door, and the "alarm" light in front of the driver also comes up to full brilliance.

Audible warning of fire is given by the use of strategically placed detectors.

Brakes

Braking is by the Metcalfe-Oerlikon vacuum-controlled direct air brake system. The locomotive itself has air brakes, which are controlled either by a driver's direct air brake valve used when shunting or running light, or by a driver's vacuum brake valve when handling vacuum-fitted vehicles. In the latter case the rise and fall of vacuum attributable to the vacuum brake valve

(Continued on page 599)



Crossley—Metrovick engine-generator set, showing one of two resilient mountings

trated above, is a two-cycle eight-cylinder Vee form type continuously rated at 1,200 h.p. 625 r.p.m. The one-hr. rating is 1,320 h.p. at the same speed. "Exhaust Pulse Pressure Charging" is used for mechanical simplicity with a Roots type scavenge blower. Some of the scavenge air passed through the cylinder into the exhaust manifold is forced back into the cylinder by the exhaust pressure pulse from an adjacent cylinder. This occurs at the instant of port closure, so creating a cylinder pressure of about 10 lb. per sq. in. at the beginning of compression. Cylinder head valves are eliminated by use of the port-controlled loop scavenge system.

Wet, chromium-plated cylinder liners, cast-iron oil-cooled pistons, and aluminium alloy cylinder heads with C.A.V. injectors are used. Lubricating oil passes through a Vokes full-flow felt type filter, and a by-pass magnetic filter of Philips design is fitted. Water pumps are electrically driven. Radiator panels of the Serck double-bank type have ducted air flow to a roof-mounted motor-driven fan with thermostatic speed control.

generator supplies power for all motor driven auxiliaries, battery charging, control equipment, lighting, cab heating, main generator excitation, and train heating boiler controls.

The generator and boiler compartment is pressurised, so that the air flow through the generators is considerably augmented without the provision of complex sheet metal air ducts.

The engine-generator set is resiliently mounted in the locomotive at three points, one below the engine base and one at each side of the generator. The mountings are of the Dyna-Focal type, whereby circular Metalastik bonded rubber-to-metal sandwiches are placed on inclined faces, with axes focusing at a point vertically above the centre of gravity of the engine generator set.

Traction Motors

Each of the five axles is fitted with a nose-suspended axle-hung traction motor; all five motors are connected permanently in parallel. The motor is supported on the axle by two white-metal lined sleeve bearings, and the resilient nose suspen-

Rail Welding Depot at Dinsdale, North Eastern Region

Production of 300-ft. lengths from standard 60-ft. lengths of new and serviceable rail



Monorail loading gantries in operation, each with one-ton hoist-blocks

AMONG the track improvements envisaged under the modernisation plan is the introduction of long-welded rails, which are to be installed on all main lines. They are already being laid on sections of the East Coast Main Line between York and Darlington. To accelerate their installation, British Railways, North Eastern Region, has constructed a new rail welding depot at Dinsdale, near Darlington, where the welding of 60-ft. long rails into continuous lengths of 300 ft. or more will be undertaken. The depot has been built on a site between the Darlington to Saltburn and Fighting Cocks branches. It is situated on the fringe of industrial Tees-side which supplies most of the steel rails for the Region.

It has been designed primarily to produce long-welded rails 300 ft. long from standard 60-ft. lengths of new and serviceable rail, but provision has been

made for extensions to allow production of rails in 600-ft. lengths.

Other work to be undertaken is the dismantling of old track and the assembly of new 60-ft. lengths of prefabricated track which will still be required for certain sections of the line. Facilities are provided for accepting, unloading, and storing new rails, wood, and concrete sleepers, and track fittings.

Buildings

The depot buildings, mainly constructed of brick and concrete, consist of a shed for the rail saw and drilling machine; a welding shop containing an automatic flash butt welding machine, electric post heating machine, and other ancillary equipment; and a combined compressor and transformer house where the compressed air is produced for the various machines and tools and where electricity from the grid is trans-

formed to the required voltage to supply power for machines and lighting.

There is also a combined staff amenities and office block which includes a mess room, locker room, and washing facilities, with offices for staff controlling the depot. Accommodation is provided in this building for the management unit which controls and co-ordinates the work of this and other depots belonging to the Chief Civil Engineer in the Tees-side area.

A 10-ton overhead traversing crane moves along a gantry 607 ft. long with a span of 76 ft. 10 in.

Rails are moved from machine to machine by powered roller conveyors and little manual labour is involved.

Equipment

The principal machines and tools installed, nearly all of which are completely automatic, are, in order of sequence: a rail saw and drilling machine; a pneumatic angle grinder for cleaning rail ends prior to welding; a flash butt welding machine for welding the joints; pneumatic chipping hammers for removing surplus welded metal; a post heating machine where the joint is reheated to remove any internal stresses; a vertical and horizontal straightening press which ensures that each welded joint is accurately aligned; and a grinding machine which grinds and smooths the rail to the correct profile.

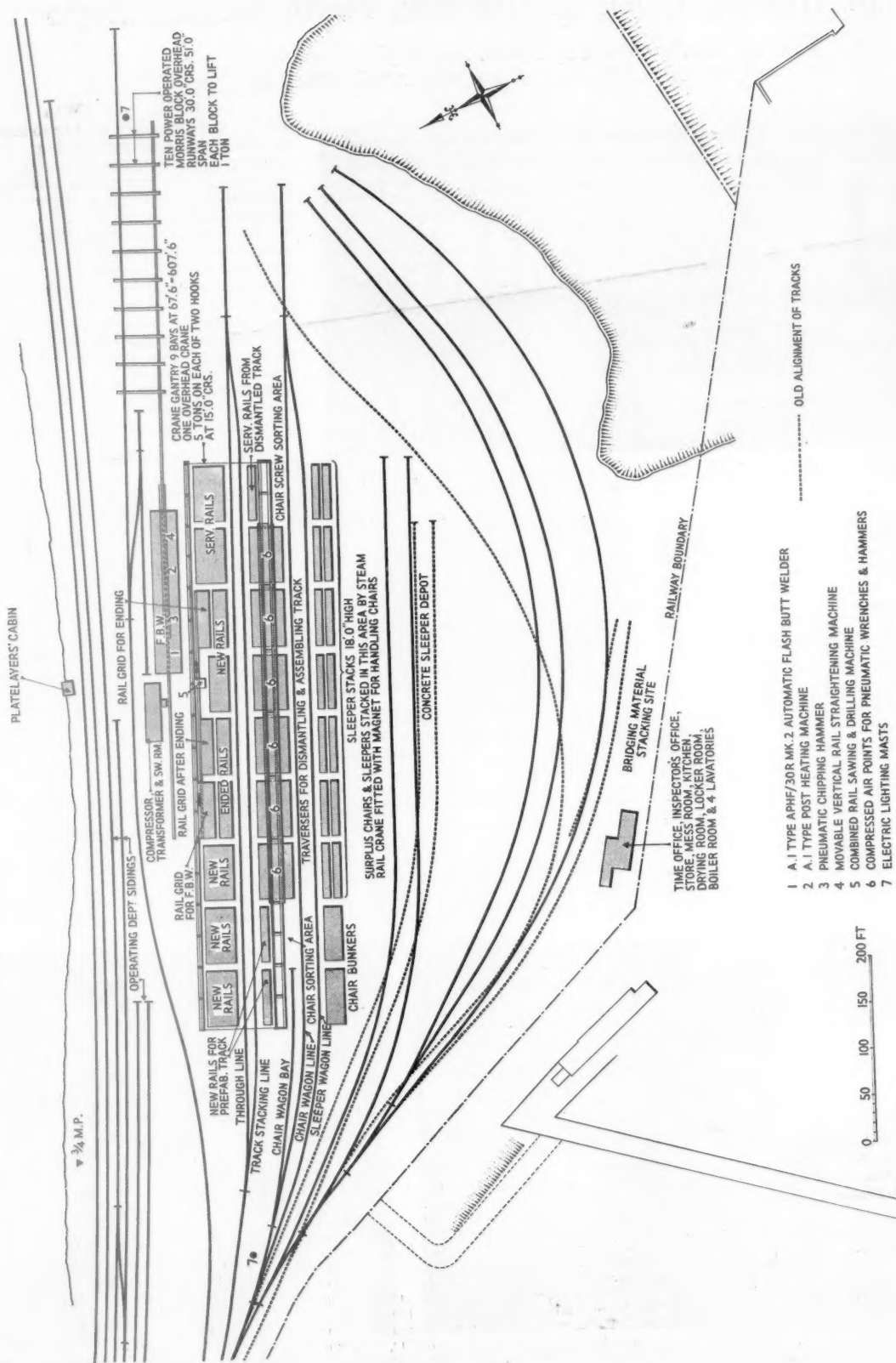
The long-welded rail, having been processed, is moved on a powered roller conveyor to a position underneath a series of 10 synchronised power-operated hoists each of one ton capacity controlled from a central point. These are provided for lifting the long rails on to a stillage for storage or on to wagons standing on an adjacent track. These



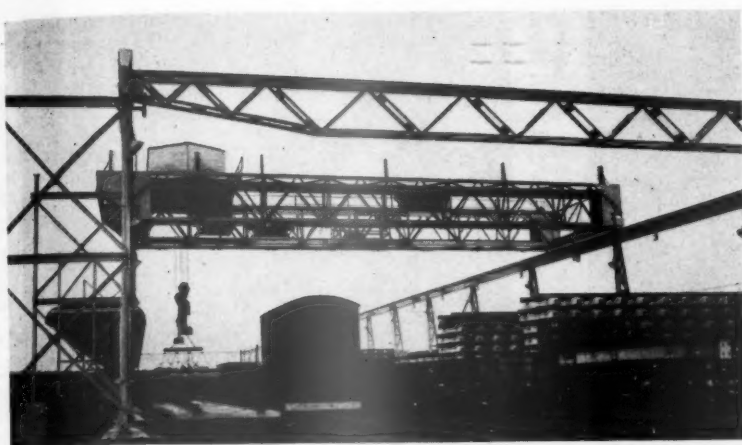
Welding shop: rail straightening press in foreground, flash-butt welding machine at far end



Automatic flash-butt welding machine in operation



Layout, showing relative positions of shed for sawing and drilling machine, welding shop, overhead runways and traversers



Ten-ton overhead crane in operation unloading sleepers before prefabrication of 30-ft. lengths of track

hoists can also be operated individually, in pairs, or in fives to handle rails which are less than 300 ft. long.

Traversing Trolleys

The section of the depot engaged on the assembly of 60-ft. lengths of new pre-fabricated track and the dismantling

of old track, uses six 60-ft. traversing trolleys. These are propelled at right angles to their length along rails situated between the stanchions of the overhead traversing crane gantry and the work of assembly or dismantling is carried out in various stages. The overhead crane is also used for lifting and lower-

ing this type of track and rails from or on to the trolleys.

The depot can deal with 95-lb. B.H., 98-lb., and 109-lb. F.B. Annual output will be about 55 single track-miles of continuous welded rail and 35 miles of pre-assembled 60-ft. lengths of track. Approximately 20 miles of old standard lengths of track will also be dismantled each year.

Principal contractors are:—

Flash butt welding shop and staff amenities office block	Cawood & Wharton Limited
Compressor house/transformer house	Blacketts Limited
Loading gantries	Wright Anderson Limited
Crane gantry	A.I. Resistance Welders Limited
Flash butt welding machine	Fielding & Platt Limited
Post heater	Paterson Hughes Engineering Co. Ltd.
Vertical and horizontal straightener	Broom & Wade Limited
Ten one-ton hoist blocks	Clough, Smith & Co. Ltd.
Ten-ton overhead gantry crane	The English Electric Co. Ltd.
Two 150-cu. ft. air compressors	Dorman & Smith Limited
Underground cable work	British Insulated Callenders Construction Co. Ltd.
Switchgear	Heenan & Froude Limited
Current collector equipment for post heater and rail straightener	Nalder Bros. & Thompson Limited
Water cooling towers	Tubewrights Limited
Earth proving equipment	Ionlite Limited
Lighting towers	
Lighting fittings in welding shop	

Type "2" Diesel-Electric Locomotives for British Railways

(Concluded from page 596)

normally causes two triple valves, one for each bogie, to release or admit air to the 12 in. dia. brake cylinders, so braking the locomotive besides the train. A foot switch at the driving position provides for the proportional locomotive brake application to be partially or fully released when required.

Deadman's equipment is provided. A pedal is fitted at each driving position, with a hold-over button for use during shunting movements on the opposite side of the cab. Two rates of build-up of brake cylinder pressure are available for use with this equipment and for other brake applications outside the driver's control, such as A.T.C., the slower rate being used on "unbraked" trains.

Electro-pneumatic sanding is employed and is arranged so that the sand is applied to the leading wheels for either direction of travel of the locomotive. The apparatus is controlled by a foot switch at the driving position. Provision is made for the installation of British Railways Type A.T.C. equipment.

Sub-contractors include:—

Mechanical parts	Metropolitan-Vickers—
Diesel engine	Bever, Pescoc Limited
Brake equipment	Crosley Frithers Limited
Brake castings and	Davies & Metcalfe Limited
springs	English Steel Corporation Ltd.
Axleboxes	Hoffmann Manufacturing Co. Ltd.
Batteries	D.P. Battery Co. Ltd.
Cables	Siemens Edison Swan Limited

Compressor and water pumps	Worthington-Simpson Limited
Conduit	Simplex Electric Co. Ltd.
Doors	Lightalloys Limited
Engine cooling equipment	Serck Radiators Limited
Exhausters	Westinghouse Brake & Signal Co. Ltd.
Fire extinguishing equipment	Pyrene Co. Ltd.
Fans	Keith Blackman Limited
Filters	Davidson & Co. Ltd.
Oil and fuel pumps	Air-Maze Limited
Resilient mountings	Vokes Limited
Seats	Varley—F.M.C. Limited
Shock absorbers	Metallastik Limited
Speed and mileage indicating equipment	Silentbloc Limited
Train heating boiler	A. W. Chapman Limited
Wheels and axles	Woodhead-Monroe Limited
Windows	British Thomson-Houston Co. Ltd.
	Spanner Boilers Limited
	John Baker & Bessemer Limited
	Beckett, Laycock & Watkinson Limited

IMPROVED AMENITIES AT DINGLE SIDINGS, GARSTON.—Work has begun on a new amenities building for the staff at Dingle Sidings, Garston, near Liverpool, London Midland Region. There is also to be new office accommodation, workshop, and stores. The staff at Dingle are engaged primarily on marshalling banana wagons from and to Garston Docks.

IMPROVEMENTS AT ROYAL DOCK, GRIMSBY.—The West Quay of the Royal Dock, Grimsby, British Transport Commission, is to be modernised at a total estimated cost of £165,030. The work involves the widening of the quay from 36 ft. to 66 ft.; the renewal of the two existing railway lines and the provision of a third; renewal of the crane track and the strengthening of the arches on which the quay is built to allow modern cranes to be used. The whole area will be re-surfaced in concrete. Three 7½/3-ton electric cranes will be installed in replacement of four hydraulic

three-ton units, and two three-ton electric cranes will be transferred from the east side of the dock. The quay will then be equipped with seven electric cranes, with lifting capacities ranging from three to 10 tons, and with sheerlegs of 60-ton capacity. Hydraulic power will be discontinued, and diesel tractors used in place of capstans.

COLLISION IN ARGENTINA.—Twenty-two people are reported to have been killed and 100 injured in Buenos Aires on November 8 when a steam train ran into a stationary electric train during the evening peak period.

SUNDAY DIESEL SERVICE ON THE GREAT NORTHERN LINE.—The Sunday service between Kings Cross and Hertford North Eastern Region, British Railways, is now operated entirely by diesel power. The existing timetable is being maintained by the use of 1,160-h.p. Birmingham Railway Carriage & Wagon Co. Ltd. diesel-electric locomotives, hauling standard suburban stock, and Craven-built multiple-unit diesel trains. The pattern of operation throughout the day is two multiple-unit trains followed by one diesel-hauled train.

RECORD BRITISH TRANSPORT ADVERTISING RECEIPTS.—British Transport Commission commercial advertising receipts from sites, for the three months ended September 30, were a record. A total of £855,000, the highest figure for any quarter in the nine-year history of British Transport Advertising, was received from advertisement sites on British Railways, London Transport, provincial and Scottish buses, and British Road Services. London Transport road and rail sites accounted for the largest single amount, £419,000. The record figure exceeded by £28,000 the amount for the same period of last year, an increase of 3.4 per cent.

Institution of Locomotive Engineers Visit to Fraser & Chalmers and J. Stone Works

(See last week's issue)



At Erith, inspecting extended surface tubing for steam generating plant; group includes Messrs. K. J. Cook, J. H. Cansdale, J. F. B. Vidal and M. A. Crane



At Charlton, Mr. J. H. Cansdale and Mr. A. H. Chilton inspecting the Stone-Fatveley Type "AM" pantograph



Welding webs on compound girder for crane rail track at the Fraser & Chalmers works; included in the group are Mr. S. E. Coppen and Mr. C. M. Cock



Messrs. S. B. Warder, C. M. Cock, and W. J. Ruston at the J. Stone & Co. (Charlton) Ltd. works

RAILWAY NEWS SECTION

PERSONAL

Mr. F. M. Khan, Director General of Railways, Pakistan, from 1950 to 1952, and Chairman of Karachi Port Trust, from 1955 to 1956, has been appointed Minister of Communications for the Government of Pakistan.

Mr. R. A. Emerson, Vice-President, Operation & Maintenance, Canadian Paci-

fic Railway, who, as recorded in our October 24 issue, has been appointed Vice-President of the Canadian Pacific Railway, was born at Plum Coulee in 1911. Mr. Emerson was a graduate of Manitoba University and took post-graduate studies in transportation at Yale University in 1933 and 1934. He began his permanent career with the C.P.R. in 1935, as a transitman, in the Kenora Division. Previously he had held temporary appointments while completing his education. In 1939 he became Roadmaster, Portage Division, and was appointed Divisional Engineer at Brandon in 1941 and at Moose Jaw in 1943. He was stationed at Vancouver from 1944 to 1948, first as Assistant District Engineer and later as District Engineer. Mr. Emerson became Chief Engineer, Canadian Pacific Railway, in 1951, and has been Vice-President, Operations & Maintenance, since 1955. He is a member of the Engineering Institute of Canada and of the American Engineering Association.

Mr. T. I. Awosika has been appointed London Representative of the Nigerian Railway Corporation. He succeeds Mr. J. C. Egbuna, who is returning to Nigeria.

Mr. S. K. Mukerji, Chief Commercial Superintendent, Southern Railway of India, who, as recorded in our October 17 issue, has been appointed a member of the Indian Railway Rates Tribunal, was born in 1904. He matriculated in

sional Transportation Superintendent, and subsequently became Deputy Chief Commercial Superintendent. Mr. Mukerji became Chief Commercial Superintendent, Southern Railway of India, in November, 1954.

Mr. C. W. Guillebaud, a member of the Industrial Disputes Tribunal, has been unanimously elected Chairman of the independent inquiry to be made in connec-



Mr. R. A. Emerson
Appointed Vice-President,
C.P.R.



Mr. S. K. Mukerji
Appointed a member of the Indian Railway
Rates Tribunal

tion with railway pay. Appointment of the other two members will be announced shortly. Mr. C. W. Guillebaud was Chairman of the Court of Inquiry set up by the Minister of Labour in 1947 to inquire into the dispute between the mainline railways and the unions, which resulted in the 44-hr. railway working week (42 hr. for salaried staff).

We regret to record the death on November 9, at the age of 64, of Mr. E. J. Waddington, a director of Vickers Limited, Vickers-Armstrongs Limited and, until his resignation recently owing to ill health, of many subsidiary companies of Vickers Limited. He was also a former director of the English Steel Corporation Limited.

Mr. B. C. King, Design Draughtsman, Gloucester Carriage & Wagon Co. Ltd., has been elected a Graduate of the Institution of Locomotive Engineers, and not Mr. B. C. Kind, as previously recorded.

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Mr. H. S. Jenkins

Appointed Commercial Officer,
Cardiff, Western Region



Mr. C. H. D. Read

Appointed Running & Maintenance Officer,
Cardiff, Western Region



Mr. L. C. Barron

Appointed Staff Assistant to Traffic Manager,
Cardiff, Western Region

Mr. H. S. Jenkins, District Commercial Manager, Cardiff, Western Region, British Railways, who, as recorded in our October 24 issue, has been appointed Commercial Officer in the Divisional Traffic Manager's Office, Cardiff, began his railway career at Newport, Dock Street Station, and, after a period in the District Goods Manager's Office, Cardiff, returned to Newport when that District was formed in 1929. He was Liaison Officer during the building of the Royal Ordnance Factories at Glascoed, Hirwaun and Pontrilas, and was later at the wartime Depot at St. Mellons. Following a period as Goods Agent, Bridgend, he was transferred to headquarters, and was subsequently appointed Chief Outdoor Representative to the Chief Goods Manager. Later, following a period as Liaison with the Board of Trade, Cardiff, under the Locations and Industries Act, he returned to Newport as Goods Agent. In 1948 he was appointed Assistant District Goods Manager, Bristol, and ultimately District Commercial Manager, Shrewsbury, Newport, and later, Cardiff. Mr. Jenkins is a Newport Harbour Commissioner; a member of the Institute of Transport, also a member of the Cardiff Chamber of Commerce.

Mr. G. R. Green has been appointed General Sales Manager, Tangyes Limited.

Mr. J. W. Plowman, Dewrance & Co. Ltd., has been re-elected Chairman of the British Valve Manufacturers' Association for the year 1958-59. Mr. N. P. Newman, Newman, Hender & Co. Ltd., has been re-elected Vice-Chairman. The other members of the Executive Committee are: Mr. D. Bailey, Sir W. H. Bailey & Co. Ltd.; Mr. F. T. Bintlcliffe, J. Blakeborough & Sons Ltd.; Mr. F. Burgess, Whites-Nunan Limited; Mr. G. F. Chambers, the Bryan Donkin Co. Ltd.; Mr. A. E. Dickinson, Smith Brothers & Co. (Hyson) Ltd.; Mr. D. S. Gardner, Glenfield & Kennedy Limited; Mr. F. S. Ham, Ham, Baker & Co. Ltd.; Mr. H. R. Hammond, Crane Limited; Mr. K. M. Leach, Audley Engineering Co. Ltd.; Mr. T. B. Pattison, Alley & MacLellan Limited. Mr. Ham and Mr. Pattison are newly appointed.

Mr. C. H. D. Read, District Motive Power Superintendent, Newport, Western Region, British Railways, who, as recorded in our October 24 issue, has been appointed Running & Maintenance Officer in the Divisional Traffic Manager's Office, Cardiff, served his apprenticeship with the Great Western Railway at Swindon. After gaining experience in the Test House and Drawing Office, Mr. Read spent some years on the Continent as Resident Inspecting Engineer for a firm of consulting engineers to the Colonial Railways. He joined the London Midland & Scottish Railway in 1932, as Mechanical Inspector, acting as liaison between the Chief Mechanical Engineer's Department and the Motive Power Department. In 1948, after holding various appointments in the Motive Power Department, L.M. & S.R., he became District Motive Power Superintendent, Colwick, Eastern Region, British Railways. Mr. Read returned to the Western Region as District Motive Power Superintendent, Newport, in 1950.

TILLING GROUP APPOINTMENTS

The British Transport Commission announces the following appointments to the boards of certain Tilling Group companies, resulting from the retirement, on December 31, of Mr. F. P. Arnold, Member of the Group management board:—

Chairmen

United Automobile Services Ltd. (and associates), Mr. J. S. Gavin; West Yorkshire Road Car Co. Ltd. (and associates), Mr. C. H. S. Pickett; Crosville Motor Services Ltd., Mr. M. A. Holmes; Brighton, Hove & District Omnibus Co. Ltd., Mr. J. S. Gavin.

Directors

United Automobile Services Ltd. (and associates), Mr. R. I. H. Longman; Lincolnshire Road Car Co. Ltd., Mr. J. S. Gavin; London Coastal Coaches Ltd., Mr. R. I. H. Longman. All are members of the Group Management Board.

Mr. Pickett will also become a member of the Halifax and Huddersfield Joint Omnibus Committees. No changes will be made to the boards of the Eastern Counties Omnibus Co. Ltd., or Wilts & Dorset Motor Services Limited, from both of which Mr. Arnold will also resign.

Mr. L. C. Barron, A.C.I.S., A.M.Inst.T., Staff Assistant to the Running & Maintenance Officer, Western Region, British Railways, who, as recorded in our October 24 issue, has been appointed Staff Assistant in the Divisional Traffic Manager's Office, Cardiff, joined the Great Western Railway, in 1923, in the Goods Department at Swansea. Mr. Barron served in various Goods Stations in South Wales until 1932, when he transferred to the London District as a relief clerk and was employed at Slough and South Lambeth Goods Depots. In 1934 he moved to the Accounts Section, Chief Goods Manager's Office, and, the following year, transferred to Staff Section, General Manager's Office. He later was appointed head of the section dealing with rates of pay and conditions of service of all wages staff. He served as Secretary, Management side, of Sectional Councils Nos. 2, 3, 4 and 5, and was the G.W.R. Representative on the Railway Staff Conference Sub-Committee. Mr. Barron was also the Western Region Member, management side, of the committee set up to draft National Promotion and Redundancy Schemes, for all wages grades, jointly with headquarters representatives of the Railway Trade Unions. In 1941 he was engaged in the introduction of canteens at all large centres on the Great Western Railway. In 1951, Mr. Barron transferred to the Eastern Region as Staff Assistant to the Motive Power Superintendent, Liverpool Street, returning to the Western Region, in 1953, in a similar capacity.

Mr. G. C. Bonnell, Chief Clerk, London office, Canadian National Railway, has been appointed District Passenger Agent, London.

Mr. P. M. Haydon, Development Assistant to the Motive Power Officer, Waterloo, Southern Region, British Railways, has been appointed District Motive Power Superintendent, Brighton.

Mr. F. Beaney, a surveyor, Estate & Rating Surveyor's Department, Eastern Region, British Railways, has been appointed District Estate Surveyor, Peterborough. He succeeds Mr. T. E. Charles, who is retiring.



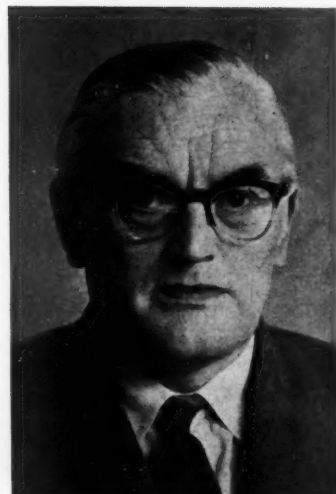
Mr. E. S. Cox

Appointed Assistant Chief Mechanical Engineer,
British Railways Central Staff



Mr. P. C. Cooper

Appointed Assistant Line Traffic Officer,
Derby, L.M. Region



Mr. S. C. Pearson

Appointed Assistant General Manager,
Consett Iron Co. Ltd.

Mr. E. S. Cox, M.I.Mech.E., M.I.Loco.E., Mechanical Engineer (Development), Mechanical Engineering Department, British Railways Central Staff, who, as recorded in our October 17 issue, has been appointed Assistant Chief Mechanical Engineer of that department, was educated at Merchant Taylors' School, Crosby. Mr. Cox received his engineering training at the Horwich Works of the former Lancashire & Yorkshire Railway and served for a while in the Drawing Office of that works. In 1927, following the formation of the L.M.S. Railway, he was placed in charge of the Dynamometer Car at Derby, and, in 1931, he moved to Euston as Technical Assistant. In 1935 he returned to Derby as Assistant Locomotive Works Superintendent, in 1938 he became Personal & Technical Assistant to the Chief Mechanical Engineer, and, in 1941, was appointed Chief Technical Assistant. On nationalisation, Mr. Cox was appointed Executive Officer (Design), in which capacity he dealt with both locomotive and carriage and wagon work under the Railway Executive Member for Mechanical & Electrical Engineering. He was appointed Mechanical Engineer (Development), British Railways Central Staff, in 1955. Mr. Cox holds the George Stephenson Research Medal of the Institution of Mechanical Engineers and the Gold Medal of the Institution of Locomotive Engineers, of which body he is a Past-President. He is a Lt.-Colonel in the Engineer & Railway Staff Corps and a member of the Control Committee of the International Union of Railways' Office of Research & Experiments. He visited India, the U.S.A., and Russia to report on motive power development.

We regret to record the death, on November 5, of Mr. Roger Thrupp, of the staff of G. Stephenson & Co. Ltd., representative of the Société Internationale des Applications Isothermos. He also represented Robert Hyde & Sons Ltd. in the provinces. Educated at Harrow, Mr. Thrupp was a pupil of, and later an assistant at Kings Cross to, the late Sir Nigel Gresley, Chief Mechanical Engineer Great Northern Railway, and, subsequently, of the L.N.E.R.

Mr. P. C. Cooper, A.M.I.Loco.E., Assistant, General, to the Midland Divisional Motive Power Superintendent, Derby, London Midland Region, British Railways, who, as recorded in our October 17 issue, has been appointed Assistant Line Traffic Officer (Motive Power), Derby, joined the Southern Railway as an apprentice in 1936. Mr. Cooper served in the Road Motor Maintenance Repair Shops, Battersea, and, in 1939, was transferred to the Chief Mechanical Engineer's Locomotive Works, Ashford. During the 1939-45 war, Mr. Cooper served in the Merchant Navy as an Engineer Officer in troop-transport ships. He was commended for bravery when his ship was torpedoed. Mr. Cooper returned to the Southern Railway, in 1944, as a draughtsman in the Chief Mechanical Engineer's Drawing Office, Waterloo. In 1945 he transferred to the Motive Power Office, Western Divisional Superintendent, Woking, and in 1946 was appointed Locomotive Foreman, Yeovil. In 1947 he became Locomotive Foreman at Norwood Junction and New Cross Gate Depots, where he was concerned with the introduction of the first group of standard diesel-electric shunting locomotives on the Southern Region. Mr. Cooper was transferred to the London Midland Region in 1950, and for four years worked in the Motive Power Superintendent's Office, Euston. He was appointed Assistant District Motive Power Superintendent, Toton, in 1954 and Assistant, General, to the Midland Divisional Motive Power Superintendent at Derby in 1956.

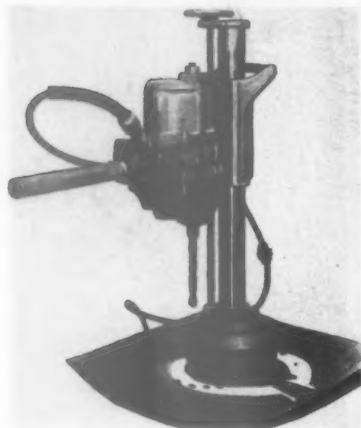
Mr. G. H. Wolno, Eastern Area Manager of C.A.V. Limited, now will operate from Cambridge over an extended region including Lincolnshire and Essex. The company's South-Eastern Area, originally divided into north and south Thames regions, now comprises the Home Counties Hampshire, Sussex, Oxfordshire, and Berkshire, with headquarters at Brighton. A London Area, covering Metropolitan Police District, with headquarters at Acton. Mr. D. J. Thomas is Area Manager for the South-Eastern Area, and Mr. J. E. Liardet is Area Manager, London Area.

Mr. S. C. Pearson, Assistant General Works Manager (Services), Consett Iron Co. Ltd., who, as recorded in our issue of October 31, becomes Assistant General Manager, began his career at Luton, Great Northern Railway, in 1922. After serving at Dunstable and Knebworth, Mr. Pearson was transferred to the District Manager's Office, Peterborough, in 1928. In 1936, he was appointed District Representative, Spalding Area. In 1939, he was transferred to London, where he served in the Offices of the Goods Manager and Chief General Manager. During the 1939-45 war he was seconded to the Ministry of Supply Headquarters, Shell-Mex House, London, as Chief Transportation Officer. In 1945 he was transferred to the Passenger Manager's Office, York, as Head of the Canvassing & Development Section. He became Head of Works Section, Commercial Superintendent's Office, in 1949, and, in 1951, was appointed Assistant (Special Duties) in the Commercial Superintendent's office, York. In 1952, Mr. Pearson was appointed Assistant District Goods Superintendent, Newcastle-on-Tyne, which appointment he relinquished, in 1953, to join the Consett Iron Company as Transport Manager. He became Assistant General Works Manager (Services) in 1955.

We regret to record the death of Mr. T. A. Guest, O.B.E., A.M.I.Mech.E., former Chief Mechanical Engineer, the Manchester Ship Canal Company. Mr. Guest joined the company in 1921 as an assistant to the Chief Mechanical Engineer, and was for some time in charge of the company's works at Ellesmere Port. He designed many items of mechanical handling equipment now used in the Port of Manchester, including the 250-ton floating crane, the lock-gate repair shed at Runcorn, the Thelwall pumping station, the first diesel tugs and the grab-hopper dredger. Mr. Guest was also responsible for the design of a number of special locomotives for Stanlow and Ellesmere Port.

We regret to record the death on November 7, at the age of 73, of Mr. C. D. Hely-Hutchinson, Director of the Rhodesia Railways Trust.

NEW EQUIPMENT AND PROCESSES



Portable Magnetic Drill Stand

ECONOMY in manpower by a reduction in setting-up time is claimed for the Mark Two Magcodrill stand, usable in the heaviest class of work in locomotive shops. Experience with earlier models is stated to have shown that the biggest demand is for stands suitable for the larger drills which otherwise need either two men to hold them or mechanical support.

The new stand has a drill capacity of 1½ in. but when working on thick plates the drill size can be increased. The previous three-arm drill lever has been replaced by a square threaded lead screw which permits a 14½-in. stroke against a few inches usually found on the lever type stand.

To deal easily, quickly and with greater safety, particularly with vertical and overhead drilling, the previous method of reducing the magnet pull and sliding the drill into position has been discarded in favour of placing the stand in the approximate drilling position with full magnet power on. To position the drill accurately, movement is provided allowing the radius to be changed by 1 in., and the drill to be swung around through 240 deg. This range is shown in the illustration and the mechanical lock secures the drill against all drilling strains. The units are available for any voltage from 50-250 a.c. or d.c., including Hi-cycle drills of 200-400 cycles. The drill cannot be started until the magnet is energised. The base diameter is 8 in., overall height 29 in. with

a weight of 60 lb.; power consumption of the magnet is 0.25 amps.

The basic price of the unit is £75, and at present delivery is three weeks. Further particulars may be obtained from Magnetic Equipment Co. Ltd., Lake Works, Portchester, Hants.

Measurement of Coating Thickness and Metal Hardness

THERE are many applications in railway research laboratories and inspection departments for the Elcotector which is designed to measure coating thickness and hardness in a non-destructive manner. It works on the eddy current principle and is stated to have great stability.

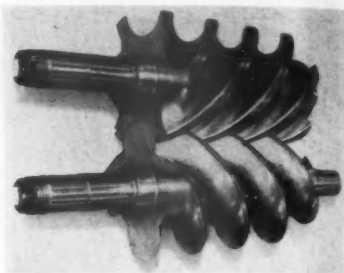


The coil is situated in the head of the probe, which is supplied in several forms. It is influenced in proportion to its proximity to a metal surface and by the type and structure. The meter is housed in a desk-type cabinet, 12 in. × 8 in. × 8 in. It can translate the changes into metal on coating film thickness and metal hardness.

Sensitivity can be adjusted for whatever range is chosen and readings are taken over a scale of 4 in. with 50 subdivisions. Blank masks are provided to enable an unskilled operator to work between two pre-selected points whilst the full-scale markings are hidden.

Transformer tapings are arranged for use on all usual a.c. mains voltages and frequencies. The loading of the unit is approximately 55 W.; the weight with lead and probe is 15 lb. The price is £160.

The manufacturer is East Lancashire Chemical Co. Ltd., Fairfield, Manchester, who is prepared to supply information on application of the Elcotector to other purposes including continuous strip and comparative hardness measurements requiring specially shaped coil heads.



Long Wearing Portable Compressor

WITH definite built-in pressure ratio and axial flow characteristics, the Holman Rotair portable rotary screw compressor can be used in civil engineer work on site and also for general workshop purposes. It can deliver compressed air without pulsation. The compressor consists of two helical fluted intermeshing rotors, seen from the discharge side in the illustration, mounted in one casing. As they rotate, air is trapped in the interlobe space and compressed with a progressive reduction in volume space until released into the discharge port. The male rotor, which has four lobes, absorbs practically all the power required by the compressor. The female rotor, with six lobes, functions as a rotary valve resulting in a continuous piston effect. High efficiency is achieved in a single stage by the use of oil cooling, which is stated to result in air-delivered temperatures at least 100° F. less than those obtained from conventional compressors.

The range of compressors, giving outputs of 135 to 600 cu. ft. per min., uses a variety of diesel prime movers. Good manoeuvrability and compactness are claimed as advantages afforded by independent wheel springing of the chassis.

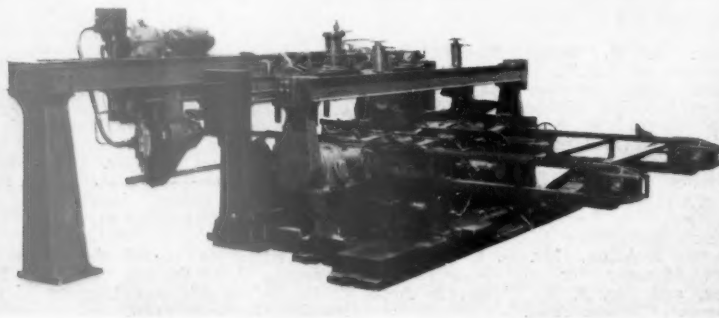
The Rotair can function at more than double the speed of the diesel engine with the use of step-in gearing to give a maximum compressor speed of 4,000 r.p.m. Interlobe loading between rotors is very light and because of the cooling fluid, the rolling engagement between the helices of the rotors results in only very small losses.

Particulars, including price and delivery, may be obtained from Holman Bros. Ltd., Camborne, Cornwall, which is working in agreement with James Howden & Co. Ltd.

Sleeper Adzing and Boring Machines

FROM 400 to 450 sleepers an hour, of any gauge, can be adzed and bored by a fully-automatic mill manufactured in the U.S.A. A semi-automatic machine in the same range can produce 350 sleepers an hour. All types can be equipped with feed and discharge conveying systems, automatic marking devices, and trim saws, and will accommodate hand-hewn or mill-sawn sleepers. The machine illustrated is fitted with marking device.

Further details may be obtained from the manufacturer, the Electric Taper Export Company, 205, West Wacker Drive, Chicago 6, Illinois, U.S.A.



Parliamentary Notes**Serious Financial Position of British Railways**

*Deficit of £85,000,000, due to decline in freight traffics, expected for 1958 :
Government to advance funds under Transport (Railway Finances) Act*

Mr. Geoffrey Wilson (Truro—C.) asked the Minister of Transport & Civil Aviation on November 5, in view of recent trends in goods traffic receipts of British Railways, what the amount of the advances to be made, in accordance with the provisions of Section 2 of the Transport (Railway Finances) Act, 1957, against the British Transport Commission's deficit, is likely to be.

Mr. Ernest Davies (Enfield E.—Lab.) asked what action is to be taken following the consultations he has had with the B.T.C. concerning its financial position, under the Transport (Railway Finances) Act, 1957.

Mr. Harold Watkinson, in a written answer to both questions:

Passenger receipts are good but freight receipts have been badly hit in recent months by an unexpected fall in bulk traffics due to conditions in the coal and steel industries. I have been in close consultation with the Chairman of the Commission about these developments. Although the exact amount cannot be known until after the end of the year, I understand that as a result of the fall in bulk traffics the deficit which must now be expected is of the order of £85 million or about £20 million over that for 1957. He has given me a full report on the subject which includes an undertaking to secure further large reductions in working costs to meet the position. I have informed him that in these circumstances the Government would be prepared to advance the necessary funds to the Commission under the Transport (Railway Finances) Act, 1957.

I shall circulate in the Official Report the Chairman's full report to me, which also contains his views on future prospects, and also a copy of my letter to him, which sets out the Government attitude in the matter.

Report by Chairman of B.T.C.

Letter dated September 29, 1958, from Sir Brian Robertson, Chairman of the British Transport Commission, to Mr. Harold Watkinson, Minister of Transport & Civil Aviation.

1. You are aware, from the discussions which we have had, of the grave fall in bulk and heavy traffics which has occurred, particularly during the third quarter of the year, and of the consequent effect on the Commission's revenue. From the results of the present year, so far as they are known to us, it now becomes apparent that the deficit of the Commission for 1958 will be considerably more than the amount of the 1957 deficit. This is a situation which we should face now although its final scope cannot be known for some months. I know that you agree with this. I am, therefore, writing to bring together the whole story and to present it to you comprehensively and, indeed, to summarise our own discussions.

Background

2. The forecasts given in the White Paper of October, 1956, were expressly based upon certain assumptions which are set out in paragraph 3 of the Commission

memorandum to you of September, 1956, and reproduced on page 11 of the White Paper. This stated that "throughout the review and in estimating the future margin between revenue and expenditure the Commission have, of necessity, framed their forecasts on the basis of the present value of money and a continuance of current economic conditions." The Commission have done their utmost to meet increases in costs and foreseeable declines in revenues, and thus keep within the limits of their financial plan. The serious drop in activity, particularly in heavy industry, in recent months has, however, caused a precipitous fall in the revenues of British Railways quite beyond anything envisaged when the Commission submitted their memorandum embodied in the White Paper of 1956. This is exemplified in Appendices "B" and "C" to this letter.

Traffic Position

3. The fall in British Railways traffic receipts for the first 36 weeks of 1958, by comparison with the Commission's budget estimates, is tabulated in Appendix "A" to this letter. The sum total of all railway traffic receipts for the first 36 weeks shows a decline of over £18 million (5½ per cent). Considering the state of trade, passenger traffic is remarkably buoyant, total passenger receipts having receded by no more than £1.3 million (1½ per cent) and, wherever modernised passenger services have been introduced, there has been an improvement in the net revenue position. Total freight receipts have, however, shrunk by no less than £16.7 million (7 per cent). The preponderance of loss is, therefore, in the freight field, especially in the case of coal and minerals.

4. The position is revealed even more strikingly in Appendices "B" and "C" to this letter, which illustrate the sudden steepening of the decline in bulk traffics during the present year. In the case of these traffics (coal, minerals, etc.) in particular, the fall in receipts is not due to diversion to other forms of transport. It would be wrong to suppose that the Commission have been the only sufferers. It is the Commission's belief that all public transport by rail, road and water, whether nationalised or in private hands, finds the present situation difficult and regards the future as a matter for serious concern.

5. In fact, the level of industrial activity in industries vital to the railways is now running below the level of 1956. There has been virtually no increase in coal production, a fall in coal imports and a large increase in undistributed coal stocks. Consequently the tonnage available for transport has fallen when it was expected that it would rise. The railway receipts from coal class traffic provide over 40 per cent of their total freight train traffic receipts and, in consequence, the fall in demand for coal has had a serious effect on revenue.

6. The iron and steel industry is second in importance only to the coal industry in its contribution to railway freight for, in addition to the coal class traffic carried on

its behalf, this industry provides about one-fifth of freight train traffic receipts. It was expected that the steady growth of the iron and steel industry would provide additional traffic receipts in the first five years of the modernisation plan. However, towards the middle of 1957 the output of the iron and steel industry ceased to rise. By the end of the year 1957 the decline had already begun, and in the second quarter of 1958, when consumers of steel began to reduce their stocks, there were immediate repercussions throughout the industry.

7. At the beginning of 1958, carryings of iron ore were only slightly below the 1957 level, but by the second quarter, when home ore production was nearly 20 per cent down, and imported ore consumption in pig iron manufacture about 15 per cent down, railways carryings showed a similar fall.

8. Scrap consumption in steel-making had fallen to some 10-15 per cent below the 1957 level by the second quarter. Railway carryings have fallen by a bigger percentage because scrap accumulated at works is being used up first. Similarly, pig iron carryings were much reduced, because the fall in the tonnage requiring transport was greater than the 10-15 per cent fall in production. Deliveries of semi-finished steel fell by 15-20 per cent and the decline in railway carryings was broadly similar. Carryings of finished steel have declined in proportion to the deliveries to steel users.

9. The Commission also draw attention, as a matter of record, to the decline in Government traffic passing by British Railways. The total receipts from this source were £25½ million in 1956, £25 million in 1957 and at current levels the figure for 1958 is not likely to exceed £20 million. Passenger and freight train traffic each account for about half of the total.

10. The severe and unpredicted fall in the level of production by the heavy industries is thus the crux of the Commission's revenue problem at this time. The fall in receipts from coal and mineral traffics alone is now at the rate of over £600,000 a week compared with last year, or at the rate of over £30 million a year.

11. Future rail carryings depend very much on the prospects of a revival of industrial activity, and especially upon the future course of events in the heavy industries. There is no indication from the industries concerned that they regard their present trading position as involving any change in their long-term planning for a steady rise in production. In these circumstances, the Commission must work upon the assumption that the present decline in these traffics is a temporary condition, calling for short-term measures.

Revenue and Expenditure in 1958

12. Early in 1958 the revenue budget proposals for that year, which in accordance with normal practice had been submitted towards the end of 1957, were carefully reviewed. As a result, the Area Boards' budgets for the Railway Regions as finally approved by the Commission were substantially revised to ensure that

the Commission's net deficit for 1958 was reduced to £55 million, a figure broadly in line with the forecast given in the White Paper. Since there was little scope for increases in rates and fares, this involved a reduction of some £14 million in the expenditure proposed by the Area Boards. An intensive drive was, therefore, launched through the Area Boards to effect further savings in working expenses. Action was taken to effect staff reductions, to curtail overtime and Sunday working, to reduce the wagon stock, to defer a certain amount of repair and maintenance of structures, track and vehicles without incurring an accumulation of deferred maintenance, and to curtail uneconomic train mileage.

13. Following joint discussions in May on the question of railway wages and salaries, the Commission and the trade unions reached agreement for increases costing about £10 million in a full year, on the understanding that both sides would mutually play their part in the reduction of railway working expenses. The Commission gave assurances to the Government that they would reduce their working expenses and the Government for their part undertook to increase the capital investment in British Railways in 1958 and 1959 above the restricted limits imposed in October, 1957, and to grant the Commission relief towards the maintenance of road bridges over railways, and of level crossings.

14. After allowing for the help from the Government and for selective limited increases in fares and charges, further reductions in expenditure at the rate of some £6 million a year were needed to meet the remainder of the cost of the wages agreement and were put in hand.

Action to Improve Financial Position SAVINGS ON BRITISH RAILWAYS

15. The principal steps taken to reduce expenditure on British Railways, and their results to date, are:—

(a) Reduction in staff:

The total British Railways staff in August, 1958, was 563,000, a reduction of 17,000 or 3 per cent on the corresponding period last year; and reduction is continuing. Some 60 per cent of the annual expenditure on British Railways is on salaries and wages, and savings in expenditure are bound to be felt by the staff. The Commission, therefore, are careful to keep the trade unions informed on their financial position and on the measures in hand to correct it.

(b) Reduction in wagon fleet:

The total number of British Railways wagons in September, 1958, was slightly over one million, a reduction of 57,000 or 5 per cent compared with the corresponding period last year. This process continues.

(c) Rationalisation of the system:

(i) A recent survey of current proposals for the withdrawal of passenger or freight services, or both, from particular sections of railway showed that 52 such proposals had been or were likely to be submitted during 1958, involving estimated net annual savings approaching £1½ million. This includes over £600,000 anticipated saving from the proposal to withdraw services from nearly the whole of the former Midland & Great Northern Joint Lines in East Anglia, which largely represent duplicate facilities.

(ii) During the second half of 1958 the drive for economy measures of this nature has been intensified, and there probably will have been submitted to the Consultative Committees by the end of

the year the majority of the "easier" cases. New submissions will include proposals of greater size and importance, which though taking longer to examine may result in substantial financial benefits. About 35 cases of all kinds are likely to be submitted to the Consultative Committees between now and June, 1959.

(d) Curtailment in Train Mileage:

(i) To reduce passenger train mileage in cases where complete withdrawal of services from a section of line or stations was not desirable, substantial cuts in services were effected during the 1958 Summer Service. Further economies have been made in the 1958 Winter Train Service, the effect of which is:—

AVERAGE WEEKLY PASSENGER TRAIN MILES

	Steam	Electric	Diesel	Total
Winter, 1957-58	2,660,000	970,000	358,000	3,988,000
Winter, 1958-59	2,375,000	950,000	575,000	3,900,000
(+) or (-)	- 285,000	- 20,000	+217,000	- 88,000 (2 per cent)

There is thus a substantial saving (11 per cent) in the steam mileage, a smaller saving in electric mileage, and an increase of 61 per cent in diesel-worked mileage. The last-named represents mainly the continuing introduction of multiple-unit diesel trains, the greater availability and quicker turn-round of which are being exploited for traffic-building purposes. Further reductions in passenger train mileage are planned.

(ii) The reduction in freight train mileage amounts to about 5 per cent below last year's level. Some of this is due to falling traffics, and some of it to more economical methods of working. Every effort is being made to press home the reduction of expenditure without lowering the standard of service to traders.

16. For the first 32 weeks of the year, the Working Expenses of British Railways are estimated to be within £2 million, or ½ per cent, of the revised target for that period. The effect of measures taken to reduce them is being increasingly felt, and it is expected that the working expenses for the full year will be very near to budget. This indicates that the economy measures referred to in paragraph 12 above are being fully applied and will be reflected in the results for the year. There is also good reason to expect that the additional steps taken under paragraph 14 will be reflected in the rate of expenditure at the year's end.

OTHER ACTIVITIES

17. The Commission have also reviewed the revenue budgets for their other activities, and wherever possible savings are being made in order to improve the overall revenue position.

INCREASED CHARGES:

18. A 10 per cent. increase in certain charges for merchandise traffic carried by passenger train was introduced on August 1, 1958, giving an estimated yield of £750,000 in a full year.

19. The process of adjusting sub-standard local passenger fares throughout the country has been continuing. Beyond selective adjustments of this nature, any question of a general increase in passenger fares must necessarily await the decision of the Transport Tribunal on the Passenger Charges Scheme which the Commission lodged on September 1.

20. In the light of present traffic trends, the Commission cannot assume that there will be any material improvement in the gross receipts of British Railways during the remainder of the year. On this basis, the broad financial picture for the year 1958 may be as set out in the next paragraph, but a firm estimate of the position cannot be made for some months.

21. The target for the year 1958 for British Railways was a reduction of the deficit (after including Central Charges, mainly interest) to £55 million. The shortfall in gross receipts as compared with the target of £505 million is likely to be not less than £30 million. The net receipts from the Commission's other activities are not expected to do more than cover their

share of central charges. The deficit of the Commission for the year 1958 may accordingly be of the order of £85 million.

22. In a situation such as this, the financial structure of the Commission has the disadvantage compared with other businesses and indeed most other transport undertakings, that the fixed interest on Transport Stock which the Commission have to pay is an expense which has to be met in full each year whatever the earnings may be; there is no equity capital which can go insufficiently rewarded or unrewarded in a bad year. It has not been possible to build up a general reserve which could be used to meet an emergency.

23. Of the £250 million of "deficit" borrowings authorised by the Transport (Railway Finances) Act, 1957, £118 million has been borrowed in respect of the years 1956 and 1957. Assuming the deficit for the year 1958 to be of the order of £85 million, the total borrowings in respect of the three years 1956 to 1958 (if the Commission borrow the full deficit of 1958) would amount to about £200 million. The Commission's total borrowing powers in respect of deficits may, therefore, be exhausted during 1959.

Emergency Corrective Action

24. In these circumstances, the Commission have considered the emergency measures to be taken under two main heads, namely: (a) further reductions in expenditure; and (b) increases in revenue.

FURTHER INCREASES IN PER CENT.

25. The Commission have directed the Area Boards to intensify their drive during the remainder of the year to reduce expenditure to meet the present emergency. The Commission intend to work towards still greater reductions in their installations, including workshops and goods terminals, and under the former heading have in hand a further review of all their installations, including workshops and goods terminals, and under the former heading have in hand a further review of all their facilities for maintenance and for rolling stock construction, with a view to greater concentration and co-ordination of their engineering resources. It was an integral part of the modernisation plan that the British Railways system should be

adapted so as to provide a more compact network, capable of being fully utilised, and of doing efficiently and cheaply the things railways are best fitted to do. While it follows that some services now provided by rail will have to be performed by other means of transport, the continuation of modernisation will ensure that the economic value of the railway system as a whole will continue to improve.

POSSIBLE INCREASES IN REVENUE

26. (a) *Passenger traffic:* As already stated, the Commission have lodged a new Passenger Charges Scheme with the Transport Tribunal. If the Tribunal approve this Scheme, powers are not likely to be available to the Commission until early in 1959. Any general increase in British Railways passenger fares would have to be very carefully considered in the light of current market conditions: selective increases will be made where possible.

(b) *Freight traffic:* The Commission have considered the question of obtaining increased revenue from freight traffic, assessing every possibility from overall to selective increases. They consider that an overall emergency increase might yield temporary advantages only to be succeeded by permanent disadvantages. Discussions are in progress with the heavy industries to improve the revenue from certain important flows of bulk and heavy traffic. As far as possible, it is the Commission's policy to hold down their freight charges in order to encourage traffic.

Modernisation

27. Modernisation is itself the best way of achieving reductions in expenditure and increases in traffic. Its continuation at the present rate is an essential contribution towards making the railways pay their way. The faster it goes, the sooner it will pay off. The stage in modernisation has now been reached when, although much planning has yet to be done, the new equipment in use is making a real impact on the pattern of service which is reflected in the revenue results. The most striking evidence is in the field of diesel traction, where over 1,000 main-line and shunting locomotives are now in service; over 150 diesel main line locomotives will be in service by the end of the year. There are also over 2,000 multiple unit diesel vehicles now in traffic showing such increases in receipts over 1957 as 55 per cent in Hampshire and 112 per cent on Tees-side.

28. Electrification schemes are well in hand but progress is less spectacular because of the large amount of associated engineering work on bridges, stations, signalling and communications. It is significant, however, that the electrification of the Shenfield-Southend line has virtually doubled the traffic and this, together with the experience in the Southern Region, has fully justified the suburban electrification projects.

Export Express Service

29. Modernisation is also having an increasing effect on the standard of freight services. About 35 per cent of the total freight train mileage is now run by trains fitted with continuous brakes compared with 28 per cent a year ago. Since the inception of the Export Express Service nearly two years ago, over 28,000 wagon loads of export traffic have been carried to ports without a single shipment being missed through the fault of British Railways. Freight transits generally have been substantially improved.

30. The foregoing examples are evidence that the economics of the modernisation plan have been soundly conceived.

31. The finances of British Railways have been struck a violent, unexpected blow by the sharp setback in the output and traffic of coal, steel and other basic industries.

32. Having no reserves to meet such an emergency, temporary thought it may be, the Commission are facing a financial crisis of gravity and urgency. The question is: what should be done about it?

33. First, the Commission want to state that nothing has happened to stultify the appreciation of the future prospects of the railways, as set out in the White Paper of 1956. In so far as new equipment has already been put into service it has justified the claims made for it, as paragraphs 27 to 30 show. Increased flexibility in charging methods has given results more slowly than was expected, but they are beginning to mature. In the White Paper it was specifically stated that the forecasts made in it were put forward on the assumption that the general level of the national economy would stay about where it was. A severe, even if temporary, setback in those industries on which the railways are most dependent inevitably affects those forecasts. It has not shaken the Commission's confidence in their plans, nor their determination to see their plans through to success.

34. The industries with which we are most concerned are, for their part, sticking to their former plans in spite of their present difficulties. The steel industry has said so publicly. The Coal Board know that they are faced with a steady and permanent decline in the market for locomotive and household coal, but this is

the coal which is hardest to mine and easiest to sell abroad. They are confident that the market for industrial coal and coke will recover, although competition from oil will take some business from them.

35. Our recommendations as to what should be done take account of these facts. They are:—

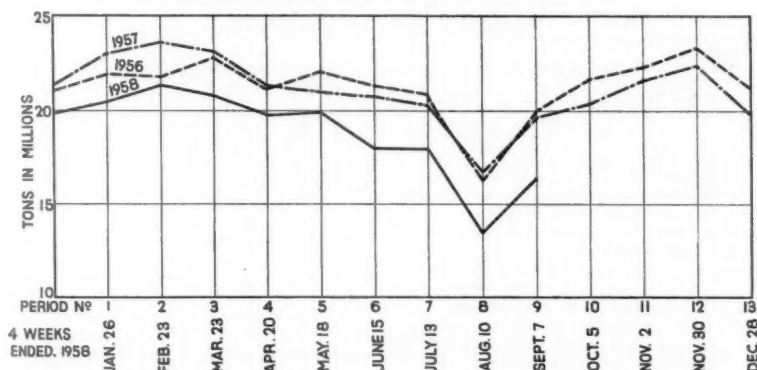
(a) Further Reduction in Costs

As is set out in this paper, much has been done during the year and the effect of the action taken will be fully apparent next year. However, we are nowhere near the end of the process of the rationalisation of our railway system. This process was an essential element in the Modernisation Plan. The kind of steps we are taking now were described in the Plan, but the process is being accelerated. Having put in hand the programme for 1958, the Commission are now preparing a programme of rationalisation for 1959. The main features will be presented to you by the end of the year. At this time I can go no further than say that we shall take as our target a reduction of £20 million per annum in addition to economies already in operation, which will yield several millions of pounds more in 1959 than in 1958.

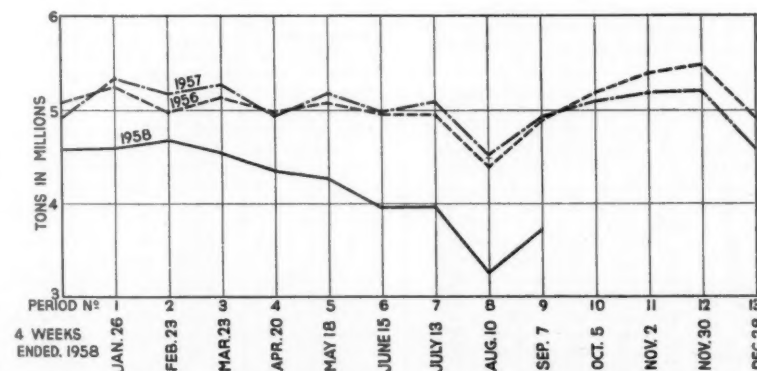
(b) Further Efforts to Increase Revenue

The situation as regards fares and charges has been outlined in this paper. Apart from this, the drive for more business will, it is believed, bring increased results as the decentralised organisation settles down, and the commercial officers become more adroit at

APPENDIX B
FREIGHT TRAIN TRAFFIC BY FOUR-WEEK PERIODS



Total, all classes (millions of tons)



Total, mineral traffic (millions of tons)

utilising the greater freedom which they have recently been given.

(c) *Modernisation to be pushed*

We remain completely convinced that by modernisation and rationalisation our railways can be made to pay their way. It is the key. Although we have been trying to go as fast as possible, we must try to go faster. Above all else we ask for the continuation of the Government's support in the prosecution of the Modernisation Plan.

(d) *Government Assistance*

Whatever the Commission may do to help themselves in this crisis, they cannot overcome it without assistance from the Government.

36. It is not for the Commission to propose what measures should be taken by the Government to see the Commission through what they must assume, on the information available to them, will be only a temporary setback. The Commission clearly recognise, however, that before additional aid, even of a temporary nature, is given, the Government must be satisfied that the Commission are doing all in their power to help themselves. I have described above what we have done and what we intend to do.

37. The Commission are anxious that the Government shall be satisfied beyond doubt that the position is fairly reflected in this letter. They would have no objection to your seeking a verification of the critical points in our presentation of the situation, as set out below, from the auditors whom you appoint:—

(a) That the undertakings which the Commission gave earlier in the year about steps to reduce working costs of British Railways will have been substantially fulfilled by the end of the year.

(b) That the sudden drop in coal and mineral traffics is the main cause of the present position, and that this drop is due to a fall in the traffic offering rather than to any failure by the Commission to hold their share of these traffics.

Reply by Minister

Letter dated October 30 from Mr. Harold Watkinson to Sir Brian Robertson.

Thank you for your letter of September 29, summing up the problems we have been discussing.

In the Government's view it would be reasonable to assume that the present phase in the economy is temporary and that

a future expansion of economic activity is to be expected. The addition of a possible further £25 million to the accumulated deficit is, however, as I know you realise, an extremely serious matter, and the maximum effort will be required from all concerned with the future of the railways if it is to be put right.

The B.T.C. re-states its view that a modern railway system is essential to our industrial future. I do not dissent, although as you recognise, it will have to be a more compact and efficient system than it is today. I shall look to you and your colleagues therefore to press forward with your plans for securing economies with the utmost determination. I appreciate that your 1958 financial picture is, to a large extent, due to external causes, but continued repetition would impair financial discipline and confidence in the financial future of the railways. Nor can the Government envisage an indefinite extension of the time when the Commission will break even.

The Commission have, however, made substantial economies this year, and I note that it is the Commission's intention to secure in addition further savings in working expenses of at least £20 million a year. The Government accept that the modernisation of the railways must continue and I am glad to see your expression of the Commission's continued confidence in its eventual success. The Government have considered how the immediate position should be met and have decided that the best course would be to advance the necessary funds under the Transport (Railway Finances) Act, 1957.

The question of how to meet your future position can be considered in connection with the general question of the limits on the borrowing powers of the Commission, which is bound to arise shortly in any case.

I told you in my letter of May 5 that the Government is prepared to consider how far it might be practicable to provide for a more rapid completion of at least parts of the modernisation plan. The scale and pace of the different parts of the plan will now also need to be looked at in the light of your proposals for speeding up economies, as well of course as in relation to the scale of public investment as a whole.

I welcome your suggestion that the auditors whom I appoint should be asked to verify that the undertakings which the Commission gave earlier in the year to reduce working costs of British Railways will have been substantially fulfilled by the end of the year and that the main cause of the present position is a fall in the coal and mineral traffics offering rather than any failure by the Commission to hold their share of these traffics. I have, therefore, asked the Auditors to let me have their Report as soon as possible.

APPENDIX A
BRITISH RAILWAYS TRAFFIC RECEIPTS
Aggregate for 36 weeks ended September 7, 1958

	1958	Increase or decrease compared with budget	
	£000	£000	Per cent
PASSENGERS:			
Ordinary	82,711	- 1,522	—
Early morning	4,931	- 158	—
Season tickets	11,965	+ 369	—
Total passengers	99,607	- 1,311	- 1.3
FREIGHT (including parcels and mails):			
<i>Freight train</i>			
General merchandise & livestock	63,614	- 6,463	- 9.2
Minerals	31,334	- 4,790	- 13.3
Coal & coke	85,133	- 4,561	- 5.1
	180,081	- 15,814	- 8.1
<i>Coaching train</i>			
Parcels & other merchandise	23,675	- 772	—
Postal parcels	6,723	- 145	—
Letter mails	5,164	+ 4	—
	35,562	- 913	- 2.5
Total freight	215,643	- 16,727	- 7.2
Total Railway Traffic Receipts	315,250	- 18,038	- 5.4

APPENDIX C
BRITISH RAILWAYS: TONNAGE OF MINERALS AND COAL AND COKE CARRIED
Weeks ended May 4 to September 7, 1958

Week ended 1958	Minerals		Coal & coke	
	Traffic	Percentage fall on 1957	Traffic	Percentage rise or fall on 1957
	Tons, 000	Per cent	Tons, 000	Per cent
May 4	1,113	- 20	3,105	- 8
" 11	1,024	- 20	2,977	- 8
" 18	1,047	- 21	3,144	- 7
" 25	1,034	- 21	3,097	- 10
June 1 (a)	929	- 29	2,439	- 27
" 8	973	- 16	2,969	- 7
" 15 (b)	1,017	- 12	2,965	+ 16
" 22	961	- 25	2,895	- 10
" 29	1,043	- 23	2,864	- 14
July 6	984	- 13	2,804	- 4
" 13	996	- 23	2,739	- 3
" 20	967	- 18	2,702	- 1
" 27	960	- 19	2,027	- 23
August 3	724	- 37	1,526	- 29
" 10	635	- 34	1,702	- 11
" 17	913	- 17	2,351	- 14
" 24	909	- 26	2,632	- 10
" 31	957	- 27	2,638	- 16
September 7	881	- 30	2,710	- 11

(a) Whit week, 1958 (b) Whit week, 1957.

NEW ROAD MOTOR ENGINEER'S DEPOT FOR SCOTTISH REGION.—A new road motor maintenance depot for the Scottish Region of British Railways has been brought into use in Glasgow. It is situated in Kilbirnie Street adjacent to Eglinton Street Station. The depot deals with the heavy maintenance of the whole Scottish fleet of some 1,600 road motors and 3,200 trailers, and the running maintenance of 800 road vehicles and 1,500 trailers operating in the Glasgow Area. The site has a two-storey office and staff amenities building along the street frontage with a large unobstructed workshop area behind.

Institute of Transport Anniversary Luncheon

Canadian Pacific's rôle in the economics of Canada and the United Kingdom

Mr. N. R. Crump, President of the Canadian Pacific Railway Company, was the guest of honour at the 39th anniversary luncheon of the Institute of Transport in the Connaught Rooms, London, W.C.2, on November 11. The attendance was a record, 651 persons. These included the High Commissioner for Canada, Mr. George Drew; Agents-General for Canadian Provinces; Mr. Harold Watkinson, Minister of Transport & Civil Aviation, and four of his predecessors, Mr. John Boyd-Carpenter, Mr. Alan Lennox-Boyd, Lord Osmore, and Mr. Herbert Morrison; senior officers of the C.P.R. and the Canadian National Railways and others prominent in Canadian affairs; and Past Presidents and other Members of the Institute and their guests, embracing many senior officers, past and present, of the B.T.C., London Transport Executive, and British Railways and the former railway companies, and of railways overseas.

The President of the Institute, Major-General G. N. Russell, welcoming Mr. Crump, referred to his outstanding career in the service of the C.P.R. which, he pointed out, was one of the largest transport undertakings in the world and has, and always had been, a good customer of Great Britain. He expressed the pleasure of the Institute at the presence of the High Commissioner and others of Mr. Crump's fellow countrymen; and of the Minister of Transport, whom he congratulated on his new roads programme, pointing out that this was a policy which had been advocated by many of those present for many years; and he also welcomed the four former Ministers. He proposed the toast of the Canadian Pacific Railway Company.

British Interest in C.P.R.

Mr. N. R. Crump, replying, praised the work of the Institute. He stressed the importance of the rôle of the C.P.R. in developing Canada, and described how the faith of its founders had been justified.

The faith of British investors in Canadian Pacific in those early years, and today, played a notable part in Anglo-Canadian commercial relations. Almost 66 per cent of the control over Canadian Pacific, measured in voting stock, rested in Britain and other Commonwealth countries. The largest single block of the voting stock remains in Britain, some 47 per cent.

Contribution to British Prosperity

This substantial British investment in Canadian Pacific, created, Mr. Crump added, a constant flow of dollars to the U.K. to meet interest requirements and dividend payments. On an average over the last five years Canadian Pacific had provided \$15 million annually to service sterling debt and to pay dividends on its capital stock. It also made a significant contribution in terms of trade. In the past five years Canadian Pacific purchases in the U.K. had averaged over \$14 million annually.

After outlining the problems of road and air competition for passenger traffic and road, water, and pipeline competition for freight, Mr. Crump described some of the major railway activities and practices.

The C.P.R. freight stock, he pointed out was equipped with airbrakes and automatic couplers. As to passenger working, "The Canadian" was the equal of any long-

distance train in the world. The diesel locomotive was coupled to a transcontinental train in Montreal and worked through to Vancouver, where it was turned with the train and returned to Montreal for periodic inspection, a run just short of 6,000 miles. Recently, to reduce costs, they had acquired a fleet of lightweight diesel railcars that were proving popular. Constant improvements were being made to marshalling yards, signalling, and permanent way maintenance. With approximately 950 diesel locomotives, the C.P.R. was now doing about 94 per cent of its total railway work with that type of motive power.

Mr. Crump then referred to C.P.R. "piggy-back" services and to trunk road haulage ("highway trucking"). The company, he stated, owned or controlled road haulage vehicles operating over almost 10,000 route-miles and extending from coast to coast. One of the most important phases of C.P.R. operation now under study and implementation was the co-ordination of railway and road services.

Private Enterprise

The causes of railway nationalisation in Canada and elsewhere, he continued "were a mixture of philosophy, public policy, and accidents in history". Private enterprise had been, and still could be, a powerfully effective instrument in the promotion of public welfare. It would be folly to con-

tend that the profit and loss system was the only one under which production could take place for the satisfaction of human needs. He did not even propose to debate the question as to which system was the best. He did, however, salute the many very capable men of high purpose and integrity who serve in the management of State enterprises for the production of goods and services. But he did not accept the imminent, or even the ultimate, demise of private enterprise.

In Canada, Mr. Crump concluded, the railways no longer had a monopoly. They were beset with rising wage and material costs. The transport industry was highly competitive. They believed that public policy in respect of regulation should take cognisance of this fact. The principles underlying Canadian Pacific policies were that they did not seek to restore monopoly conditions in Canadian transport; they accepted the challenge of competition, asking only that it be fair competition; as a transport enterprise they sought to use all tools of transport so that they could offer customers a complete service; and they strove to keep abreast of technological changes and to make the most efficient use of men, machines, methods, material, and money. In carrying out these policies they did not hide the fact that they were trying to make profits and earn dividends. In so doing, they were acting in the best interests, not only of shareholders, but also of their employees and of their customers. The objective was to earn a return on investment that would attract private capital as needed for transport to serve the growing demands of Canada and the Commonwealth.

Contracts and Tenders

Colour-light signals for East Coast main line

Westinghouse Brake & Signal Co., Ltd., has received a contract from the North Eastern Region of British Railways for the provision of colour-light signalling between Heaton Station and Burnmouth Signalbox, and control machines with route relay interlocking and power point operation at Heaton, Benton, and Tweedmouth new signalboxes.

The whole scheme is designed to be suitable for operation with 25 kV. a.c. traction and comprises some 400 main colour-light signals, 500 Westlyte shunt signals, 200 sets of power operated points, 900 track circuits and 300 "O.C.S." routes.

John Fowler & Co. (Leeds) Ltd. has received an order from South Durham Steel & Iron Co. Ltd., for 10 0-6-0 type standard gauge, 230-b.h.p. diesel-hydraulic-mechanical shunting locomotives, each 35 ton in working order, initial tractive effort 21,000 lb. This unit will embody Leyland/Albion type EN.900, four-stroke diesel engines, Schneider single stage torque converters, and Wilson two-speed air operated C.A. type epicyclic gearboxes, and RF.11 type forward and reverse air operated final drive units. The torque converter and transmission will be supplied by Self-Changing Gears Limited, which with Leyland Motors Limited, has collaborated for some time with John Fowler & Co. (Leeds) Ltd. in the development of this form of hydraulic mechanical shunting locomotive.

British Transport Commission (South Wales Docks) has placed a contract with Robertson Thain Limited for the renewal

of roof coverings at "G" warehouse, Queen Alexandra Dock, Cardiff.

British Railways, Eastern Region, has placed the following contracts:—

R. Ridd & Son (Contractors) Ltd.: cleaning and painting of station buildings, signals, signalboxes, and bridges between Purfleet and Tilbury Riverside Stations including sidings

British Insulated Callender's Cables Limited: supply and installation of signalling cables at Cambridge

Standard Telephones & Cables Limited: supply and installation of equipment in new Train Control Office at Doncaster

Kerridge (Cambridge) Limited: provision of composite building at Chester-ton Junction central reclamation depot.

Brush Electrical Engineering Co., Ltd.: supply and installation of rotary frequency converter sets and diesel generator standby sets for use with signalling systems at various depots on the Liverpool Street—Chelmsford—Southend electrification

George Simpson (London) Limited: provision of track section cabins between Clapton and Stoke Newington

W. & C. French, Limited: repairs to and strengthening of underline bridge No. 11 over River Smite between Bingham Road and Barnstone

Thomas Fletcher & Co., Ltd.: construction of foundation and track for 30-ton goliath crane in Crispall Yard at Doncaster Locomotive Works.

British Railways, North Eastern Region, has placed the following contracts:—

Albert Murray & E. Hood Limited, York: alteration and extension to w.c. block in trimming shop, York Carriage & Wagon Works

A. Herbert Limited, Coventry: No. 3 pre-optive hexagon turret lathe, Darlington Locomotive Works

T. B. Pearson & Son Ltd., Newcastle: power-operated guillotine, Darlington Locomotive Works

Turnerised Roofing (Gt. Britain) Limited, London: covering by Turnerised process, Platforms 14 & 15, York Station

E. Davis (Fixers) Limited, York: demolition of Railway Street Goods Shed, Hull

L. C. Abdale (Building Contractors) Limited, Darlington: office accommodation for C. & W. traffic departments, Billingham

E. Davis (Fixers) Limited, York: provision of hoist runways, Dinsdale.

The Special Register Information Service, Export Services Branch, Board of Trade, has received calls for tenders as follow:—

From Portuguese East Africa:

3,116 rails of 18 m., 40 kg./m., A.S.C.E., American type

150 rails of 17.88 m., 40 kg./m., A.S.C.E., American type

3,266 pairs of fishplates for 40 kg./m. rails, A.S.C.E. type

19,600 rail bolts with nuts and washers of pressure for 40 kg./m. rails, A.S.C.E. type

122,450 galvanised rail spikes

5 sets of points, complete, 1:11 right

5 sets of points, complete, 1:11 left

The issuing authority is the Ports, Railways & Transport Department, Lourenço Marques. The tender No. is A/CFB/1/1-211/58. Provisional deposits are required as follows: rails, Esc: 300,000; fishplates, Esc: 20,000; rail bolts, Esc: 3,000; rail spikes, Esc: 20,000; and points, Esc: 20,000. The closing date is December 17, 1958. Local representation is essential. The Board of Trade reference is ESB/26847/58.

From India:

11 items of semaphore signalling equipment.

The issuing authority is the Director-General of Supplies & Disposals. The tender No. is WP-2/4446/7/C. Bids should be sent to the Director-General of Supplies & Disposals, Shahjahan Road, New Delhi. The closing date is November 28, 1958. The Board of Trade reference is ESB/26760/58.

From Korea:

7,500 treated timber sleepers, cross, 6 in. x 8 in. x 8 ft. (8 ft. 6 in. lengths acceptable)

5 sets of treated timber sleepers, switch, for No. 10 turnout, 7 in. x 9 in. cross section.

The issuing authority and address to which bids should be sent is the Office of Supply, Government of the Republic of Korea, Seoul, Korea. This purchase will be financed by the International Co-operation Administration (I.C.A.), the agency through which the United States Government gives economic and technical assistance to other countries. The closing date is November 21, 1958. The tender No. is 357-R. The Board of Trade reference is ESB/26766/58/I.C.A.

Further details regarding the above tenders, together with photo-copies of

tender documents, can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1).

The India Supply Mission, 2536, Massachusetts Avenue, N.W. Washington, D.C., invites tenders for the supply of plant and machinery for the locomotive component works, Mandundih, Varanasi, India. See Official Notices on page 612.

Notes and News

Collapsible Light-Alloy Container.

The height of the prototype container described in our October 31 issue is 7 ft. 0½ in. and not 9 ft. 0½ in. as was printed in error. The bracket at the top of each door is a fouling bracket, not "folding".

Bakerloo Line Tunnel Inspection After Vibration Detected.

Underground trains on the Bakerloo Line of London Transport were delayed during the rush hour last Wednesday morning while an inspection was made to see if vibration was affecting the tunnel near Waterloo Station. Excavations and pile driving are being carried out in the area of the South Bank building site, and vibration was noticed on detection equipment installed in the tunnel.

Service of Remembrance at Euston War Memorial.

A service of remembrance was held at the Euston War Memorial on November 8. It was conducted by the Reverend W. P. Baddeley, Vicar of St. Pancras. The choir was composed of railway staff, including the Stationmaster at Euston, Mr. Harry Turrell. Mr. David Blee, General Manager of the London Midland Region of British Railways, led the procession of railway officers who laid wreaths on the memorial.

Completion of Diesel Maintenance Depot at Stratford.

The diesel maintenance depot at Stratford, British Railways, Eastern Region, has been completed and is

in full-scale operation. It consists of a shed of steel-frame construction covered by asbestos sheeting surmounting dwarf brick walls. Natural lighting is provided by wall and roof glazing. The shed has three tracks; the rails of each are carried on piers and beams, which with low level working areas between the tracks give easy access to the engines and transmissions of diesel railcars. The depot will eventually be used only by diesel railcars and diesel shunting locomotives, but at present is also being used for the servicing of main-line diesel locomotives. Bulk storage tanks supply the various grades of lubricating oil to dispensing equipment on a counter at one end of the depot, and a pipe line conveys chromated water for engine-cooling purposes to dispensing points at intervals along the inspection roads. There is a room for testing fuel injectors, a filter cleaning plant, and a stores department.

Derailment of London Transport Underground Train.

An empty London Transport Underground train was derailed as it was leaving Hammersmith depot on November 5, tearing up part of the track. Five other trains in the depot were unable to leave. A restricted service was opened for 1½ hr. between Hammersmith and Whitechapel Metropolitan line stations before normal working could be restored.

Driver Committed for Trial on Charge of Manslaughter.

The driver of the car-sleeper train from Glasgow, which collided with a stationary electric train at Eastbourne Station on August 25, was formally committed for trial at the next Lewes Assizes on a charge of manslaughter by the local magistrates at Eastbourne last Wednesday. He was accused of causing the death of the motorman of the electric train who was among five people who lost their lives.

"My Three Angels."—The Great Western Railway (London) Dramatic Society has a very high reputation for the plays which it presents but it excelled itself with the performance of "My Three Angels," the amusing comedy by Sam and Bella



Diesel maintenance depot at Stratford, showing (left) English Electric type "4" 2,000-h.p. diesel-electric locomotive undergoing cab inspection, and (right) Brush type "2" 1,250-h.p. diesel-electric locomotive being lubricated

Spewack, from the French play "Cuisine des Anges," by Albert Husson, at the Scala Theatre, London, on Friday last. The action of the play takes place in Felix Dulay's general store in Cayenne, French Guiana, when three convicts are invited to spend Christmas with the family, resulting in a series of hilarious situations. The rôles of the three convicts were extraordinarily well handled by Messrs. Charles Moody, Arthur E. Clapp, and Alexander Griffiths, and the parts of Emilie Dulay and her husband were in the capable hands of Miss Audrey Davis and Mr. Stanley Pearson; Marie Louise Dulay was well portrayed by Miss Gill Harvey. Miss Dorothy Lees gave an excellent performance as Madame Parole. Gaston Lemare and his nephew, Paul, were played by Messrs. Frederick Toon and Peter K. Blay, and the part of Sub-Lieutenant Espoir was taken by Mr. Michael C. Griffiths.

Withdrawal of Freight Service.—The Eastern Region of British Railways has announced that from December 1, the freight service will be withdrawn from the branch line between Firsby and Spilsby. Spilsby and Holgate stations will be closed. Freight traffic for these stations will be dealt with at Firsby. A collection and delivery service based on Firsby will continue to be provided in the area.

Questionnaire to Assist Timetable Planning.—The Eastern Region of British Railways is seeking the co-operation of passengers using the Kings Cross suburban services by asking them to complete a nine-point questionnaire concerning their travel requirements. By this means it is hoped to obtain information which will aid the timetable department in planning future train services. The quiz started last Monday.

Decline in Machine Tool Orders.—There was a further fall in the machine tool industry's outstanding order book during August. Orders and deliveries both declined, and at the end of the month the outstanding order book amounted to £63,150,000, which represents some 10 months' production. In August home deliveries dropped to £4,100,000, compared with £5,390,000 in July, and £4,900,000 in August, 1957. Export deliveries also fell, from £1,620,000 in July to £1,290,000 in August.

Collision Averted by Signaller.—A signaller in the Luton West signalbox, British Railways, London Midland Region, averted a collision on November 8, between a runaway guards van and 12-ton tar wagon, and a stationary train at Luton Station. He switched the points to divert the runaways to another line. The wagon and van were derailed as they went over the points and came to rest on a bridge with the van leaning at an angle of 45 deg. against the buttress of the parapet. The wagon lay across the other half of the line. The line was temporarily blocked and a bus service for train passengers was arranged between Luton and Dunstable.

Faraday House Educational Policy.—The Governors of Faraday House have reconsidered the educational policy of the college. Two innovations will be made in 1959 to the award of Diploma Faraday House. The first is an intermediate award of Graduate Faraday House on successful completion of the academic part of the course, and the second is the introduction of an industry-based sandwich course with

a series of six-months academic and six-months practical training. A new award, Associate Faraday House, is being introduced in 1959, to be awarded in one of four broad zones of the field of electrical engineering, namely power engineering, telecommunications, light engineering and electronics.

Robbery at Clapham Junction Station.—A man who walked into the booking office at Clapham Junction Station, Southern Region, British Railways, on November 6, on the pretence of seeking employment as a clerk, forced the booking clerk into a corner and attacked him with a piece of metal tubing. He then made off with £150.

Overcoming Breaks of Gauge.—In the article on pages 542-544 of our October 31 issue, it was stated that there were two examples of mixed-gauge open track in Switzerland. A third section, between Chur and Domat/Ems, four miles, (Swiss Federal Railway, 4 ft. 8½ in., and Rhaetian Railway, metre gauge) is about to be opened to traffic. The Bernina Railway was the first of the Swiss railways of less than standard gauge to use tank wagons for oils. The vehicle designed for a 115-tonne load, referred to on page 543, is now under construction.

Defective Lock on Carriage Door Caused Death of Passenger.—At the inquest held at Winchester on November 10 on a woman passenger who was killed when she fell from a British Railways, Southern Region, train on October 25, the coroner recorded a verdict of death by misadventure caused by the wear of the lock. Mr. F. J. Pepper, Carriage & Wagon Engineer (Eastleigh), said that he examined the coach at Clapham Junction and tested the lock. From the outside the door was firm when the lock was engaged, he said, but when he pushed against it from the inside the door flew open. On close examination he found there was some wear on the striking plate. British Railways engineers are now testing all locks to see how much wear can be safely allowed on the striking plates before replacement.

Banbury Station Rebuilding Completed.—Work on the reconstruction of Banbury Station, British Railways, Western Region, has now been completed. The principal features of the rebuilt station are the main building, which includes a booking office, left-luggage counter, bookstall, public telephones, and telegraph service; and a 40-ft. wide covered bridge spanning the tracks, which includes a large waiting room and refreshment room, each with a good view of approaching trains. During the rebuilding, the opportunity was taken to improve the track layout. Improvements include a new down relief loop line, the realignment of the main lines, and the lengthening and raising of the platforms. The whole of the work was carried out under the direction of Mr. M. G. R. Smith, Chief Civil Engineer, Western Region.

Mr. G. R. H. Nugent Visits London Transport Chiswick Training School.—Mr. G. R. H. Nugent, Joint Parliamentary Secretary, Ministry of Transport & Civil Aviation, visited the London Transport bus training centre at Chiswick on November 6. He was accompanied by Sir John Elliot, Chairman, and Mr. B. H. Harbour, Member, of London Transport Executive; Mr. J. B. Burnell, Operating Manager (Central Road Services); Mr. G. Ferny-

hough, Operating Manager (Country Buses and Coaches); Mr. K. R. Thomas, Staff and Welfare Officer; and Mr. P. B. Ongley, Training Assistant. Mr. Nugent saw new conductors being trained in the use of fare boards, drivers being lectured on road safety, and depot inspectors undergoing instruction on duty rosters. He also listened to a description of a bus chassis being given to a class of trolleybus drivers undergoing a conversion course to enable them to drive diesel buses.

North Eastern Region, "Tees-Thames Link" Service.—British Railways, North Eastern Region, "Tees-Thames Link" service, introduced experimentally on October 27, to give an improved service from Tees-side to London, is to continue until further notice. The two-car diesel train, which provides the service, now calls additionally at Northallerton. It leaves Middlesbrough two min. later, at 6.50 a.m., calling at Thornaby, Eaglescliffe, Northallerton, and York, arriving at Doncaster at 8.37 a.m. The service gives a connection with the 8.51 a.m. main line train from Doncaster, due to arrive at Kings Cross at 11.40 a.m. This enables passengers to connect with afternoon train and steamer services to the Continent and also air services from London Airport.

Western Region Train Service Alterations.—From November 3 the 10.25 a.m. from Swansea Victoria to Llandovery, Llandrindod Wells, Knighton, Craven Arms, Church Stretton, and Shrewsbury, due at 2.4 p.m., and the corresponding return train at 2.45 p.m. from Shrewsbury, due Swansea at 6.40 p.m., have been restored to the timetable; both were withdrawn in last summer's train service cuts. Over the former Midland & South Western Junction line the final link between the former Midland main line at Cheltenham Lansdown is severed in that the one remaining Cheltenham-Southampton train, the 1.56 p.m. from Lansdown, now starts from Cheltenham (St. James) at 1.52 p.m., calling also at Malvern Road; in the reverse direction the 7.50 a.m. from Andover Junction to Cheltenham similarly runs to St. James instead of Lansdown. Through passengers between the two lines must now cross Cheltenham. Among other alterations, the 1.30 p.m. "Royal Duchy" from Paddington to Penzance calls additionally at Totnes at 5.50 p.m., and the 9.5 p.m. from Bristol to Plymouth (connecting with the 6.30 p.m. from Paddington) at Highbridge at 9.38 p.m.

Forthcoming Meetings

November 17 (Mon.).—Institute of Transport, Sussex Group, at the Arlington Hotel, Brighton, at 6.30 p.m. Paper on "Platform staff and passenger," by Mr. J. A. Birks.

November 19 (Wed.).—Institute of Transport, Swindon Group, at the Town Hall, Swindon, at 7.30 p.m. Paper on "The permanent way," by Mr. W. J. Conduit, Permanent Way Inspector, British Railways.

November 19 (Wed.).—Permanent Way Institution, London Section, at the headquarters of the British Transport Commission, 222, Marlebone Road, London, N.W.1, at 6.30 p.m. Paper (illustrated) on "Level crossings," by Mr. E. G. Brentnall.

November 20 (Thu.).—Institute of Transport, Bournemouth-Poole Group, at

the Town Hall, Bournemouth, at 6 p.m. Paper on "Electrical accessories in the transport industry," by Mr. D. A. Cameron, C.A.V. Limited.

November 20 (Thu.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, Swansea Section, at the Board Room of the Docks Manager's Office, Adelaide Street, Swansea, at 6.45 p.m. Film of the mining and refinery operation of the International Nickel Company of Canada Limited, and the Mond Nickel Co. Ltd., with introductory talk by Mr. T. S. Charleson, Refinery Manager, The Mond Nickel Co. Ltd., Clydach.

November 20 (Thu.).—Institution of Railway Signal Engineers, London Section, at the Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 6 p.m. Paper on "Prefabrication applied to railway signalling installation," by Mr. W. A. Hardman.

November 20 (Thu.).—Diesel Engineers' & Users' Association, at the Memorial Building, The Institute of Marine Engineers, 76, Mark Lane, E.C.3, at 2.30 p.m. Paper on "Notes on the jerk system of fuel injection," by Messrs. W. A. and G. R. Green.

November 21 (Fri.).—R.O.D. Officers' Reunion Dinner at the Transportation Club, 44, Wilton Crescent, London, S.W.1, at 6.30 for 7 p.m.

November 22 (Sat.).—Railway Correspondence & Travel Society, South of England Branch, at the C.B.B. Employees' Club, Palmerston Road, Bournemouth, at 6.30 p.m. Paper on "The development of the carriage," by Mr. R. Broughton.

November 23 (Sun.).—Railway Correspondence & Travel Society. Annual reunion at the Queen's Hotel, Birmingham, at 2.15 to 7 p.m. Principal speaker Mr. D. S. M. Barrie, Assistant Secretary-General, British Transport Commission.

November 24 (Mon.).—Institution of Railway Signal Engineers, Bristol Section, at Temple Meads Station, Bristol, at 6 p.m. Paper on "Earth leakage detectors," by Mr. H. J. N. Riddle, S. & G. E. Railway Signal Co. Ltd.

November 25 (Tue.).—British Railways, Western Region, London Lecture & Debating Society. Debate with the Oxford University Railway Society at Oxford: "That this House considers that the policy of a nationalised transport industry towards the community should not be 'starvation and closure' but service."

Railway Stock Market

The upward swing in stock markets has gathered fresh momentum; many industrial shares have reached not only new peaks for the year but also the highest levels they have ever recorded. The renewed optimism in the City has reflected the confident statements made by the Chancellor of the Exchequer that lower production and higher unemployment figures are temporary factors which will be remedied by the Government's expansion policy in the home market because of the stimulus of the end of the credit squeeze, the slashing of controls on hire purchase and the increase in expenditure planned in the public sector, including the railways. Mr. Heathcoat Amory's statement that there was good reason for confidence in a revival in

world trade also helped sentiment in the City. In the circumstances, it is not surprising that share values have taken another leap upwards. On the other hand, many have now reached levels at which there are only moderate yields, and buying may very well become a good deal more selective with attention switching to shares which have so far only responded moderately to the market rise. In contrast with the strength in other sections, British Funds receded because the City now seems less hopeful of an early reduction in the bank rate.

Foreign rails tended to move lower because buying interest has centred mainly on industrial equities. United of Havana second income stock, however, held its recent improvement to 6½, but Antofagasta ordinary stock eased from 17½ a week ago to 16½, and the preference stock lost a point at 36; the 5 per cent (Bolivia) debentures were 95½xd. Elsewhere, Brazil Railway bonds have marked 5½.

Chilean Northern 5½ per cent debentures eased from 49½ to 48½. Costa Rica ordinary stock was slightly lower at 15½, compared with 16 a week ago, and the 6½ per cent first debentures kept at 75½. In other directions, Guayaquil & Quito assented bonds have marked 78, and Paraguay Central prior debentures were again quoted at 11. Elsewhere, International of Central America common shares and preferred stock were quoted at \$19 and \$110 respectively, but remained firmly held and were not tested by actual business. San Paulo 3s. units were maintained at 2s. ½d.

Canadian Pacific showed their usual activity, but did not keep best prices, and at \$53½ compared with \$53½ a week ago. The 4 per cent preference stock, however, strengthened from 56 to 56½ but the 4 per cent debentures came back from 67½ a week ago to 66½. White Pass eased from \$15½ to \$14½. Algoma Central voting trust certificates were 6½ and the income debentures were \$267½.

West of India Portuguese capital stock remained at 77 with the 5 per cent debentures 68. Nyasaland Railways shares changed hands around 12s. 9d. and the 3½ per cent debentures around 65½.

There was more business reported in shares of locomotive builders and engineers with Gloucester Wagon 10s. shares at 17s. 1½d. fully maintaining their recent rise, while Wagon Repairs 5s. shares have been firm and maintained at 10s. 4½d. Charles Roberts 5s. shares were also 10s. 4½d.

Westinghouse Brake with a gain of 1s. at 42s. 9d. were at their best so far this year, Beyer Peacock at 8s. 6d. were within 1½d. of the price a week ago, and North British Locomotive remained at 12s. 9d. Birmingham Wagon featured with a rise from 20s. 6d. to 21s. 3d. G. D. Peters changed hands up to 26s. 1½d. Pressed Steel 5s. shares at 23s. 9d. rose to their peak of the year, and the 10s. shares of the Dowty Group at 42s. were also at the year's best, but in other directions, T. W. Ward have come back from 87s. a week ago to 83s. Mather & Platt rose further from 49s. to 50s. and Metal Industries showed activity around 43s. 4½d. British Timken rose afresh from 59s. to 60s. 3d. and Ransomes & Marles 5s. shares from 15s. 3d. to 15s. 9d. Whessoe 5s. shares were 31s. 3d. and Stone-Platt Industries shares moved up to 42s. 6d. a gain of 1s. 10½d. compared with a week ago. Buyers were about for F. Perkins 10s. shares which improved to 12s. 7½d. Steel shares strengthened on the F.B.I.'s latest warning about the danger of nationalisation.

OFFICIAL NOTICES

EXPERIENCED DRAUGHTSMAN required. Good prospects and house available for married man. Apply Managing Director, Charles Roberts & Co. Ltd., Horbury Junction, Wakefield.

GHANA Public Service Commission. Applications are invited for the following vacancy in the Ghana Railway: **DEPUTY CHIEF MECHANICAL ENGINEER.** To assist the Chief Mechanical Engineer in the overall control and charge of the Mechanical Engineering Department for the repairs and maintenance of locomotives, carriages, wagons, water cranes and plant and with the day-to-day operation of locomotives in traffic. The Department consists of four sections, viz.: Workshops, Locomotive Running Section, Carriage and Wagon Section and the Diesel Electric Section. Candidates (1) must (a) have passed Parts I, II and III of the examination of the I.M.E. or (b) possess a qualification which is recognised as granting exemption from Parts I, II and III of that examination and (2) have gained not less than 10 years post-qualification experience in all aspects of maintenance, manufacture, operation and design of locomotives, carriages and wagons, water supply, electrical equipment on cranes and other auxiliary equipment, and preferably of an age not less than 40 years. Salary £2,280-£2,400 p.a. Appointment on contract for two tours each of 18-24 months duration. Gratuity at rate of £12 10s. for each completed month of residential service payable on completion of contract. Free first class passages for officer, wife and up to 3 children under 18 years and in addition an education allowance for children when not resident in Ghana of £100 a child for up to 3 children under 18 years. Generous home leave on full pay. Income tax at low local rates. Preservation of superannuation or gratuity rights, when applicable, to be arranged. For further particulars and application form visit, stating age, qualifications and experience to The Director of Recruitment, Ghana High Commissioner's Office, 13 Belgrave Square, London, S.W.1.

TENDER NOTICE

TENDERS are invited by the India Supply Mission, 2536 Massachusetts Avenue, N.W., Washington, D.C., for the supply of Plant and Machinery as listed below for the Locomotive Component Works, Mandundhi, Varanasi, India. Tender forms containing instructions to Tenderers, Conditions of Contract and Offer form, priced at \$10.00 (£3 11s. 6d.) per set and specifications for the Plant and Machinery priced at \$4.00 (£1 8s. 6d.) per each item separately as shown below can be obtained from the above office/Director General, India Store Dept. Co-ordination Branch, Government Building, Bromyard Avenue, Acton, London, W.3. England/Embassy of India, Nagai Building, 5th Floor, No. 13/20 Chome Marunouchi, Chiyodaku, Tokyo, Japan/Indian Trade Commissioner in Australia, Caltex House, 167-187 Kent Street, Sydney, Australia/Director General of Supplies and Disposals, Shahjahan Road, New Delhi, India. When applying for tender papers, please state for which items the specifications are required, and enclose the total amount accordingly. Quote reference Tender No. SE-11. Tender closing date December 23 1958.

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|----------|--|
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| 2. | Heavy Duty Lathe, Capstans and Turrets |
| 3. | Tracer Controlled and Plane Millers, Key Seating Machines. |
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| 6. | Grinding Machines. |
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